Appendix C
Site Specific ES&H Plan

Appendix C

SITE SPECIFIC ENVIRONMENTAL SAFETY AND HEALTH PLAN

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ACRONYMS

%RSD	Relative Standard Deviation
ACGIH	American Conference for Government Industrial Hygienists
ADQ	Audits of the Data Quality
AE	Architectural Engineering
AEC	Atomic Energy Commission
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
ARAR	Applicable or Relevant and Appropriate Requirements
ASM/AL	Area Shift Manager/Area Landlord
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATL	Audit Team Leader
BDAT	Best Demonstrated Available Technology
BEI	Biological Exposure Indices
BLM	Bureau of Land Management
BNA	Base/Neutral Analysis
CAR	Corrective Action Report
CDL	Commercial Driver's License
CEHND-ED-SY	Corps of Engineers, Huntsville Division—Explosives Division Safety
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CID	Construction Interface Document
CLP	Contract Laboratory Program
CoC	Chain-of-Custody
COCA	Compliance Order and Consent Agreement
CoE	Corp of Engineers
CONWEP	Army Technical Manual (TM) 5-855-1, Fundamentals of Protective Design for Conventional Weapons
COTR	Contracting Officer Technical Representative
CPR	Cardio Pulmonary Resuscitation
CR	Code of Regulations
CRREL	Cold Regions Research and Engineering Laboratory
CRZ	Contamination Reduction Zone
CSM	Chemical Surety Material
CSWP	Construction Safe Work Permit
DART	DartAmerica
dBA	Decibels Absolute
DCO	Document Control Officer
DMS	Data Management System
DNB	Dinitrobenzene
DNT	Dinitrotoluene
DOD	Department of Defense
DOE	Department of Energy
DOE–ID	Department of Energy Idaho Field Office
DOT	Department of Transportation
DRR	Document Revision Request
EBR	Experimental Breeder Reactor
ECC	Emergency Control Center
EE/CA	Engineering Evaluation/Cost Analysis
EEDs	Electro Explosive Devices
EG&G	Edgerton Germishausen and Grier
EM	Engineer Manual
EMM	Earth Moving Machinery

EMR	Electromagnetic Radiation
EOD	Explosive Ordnance Disposal
EODP	Explosive Ordnance Disposal Publication
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
ES&H	Environmental Safety and Health
EZ	Exclusion Zone
FFA/CO	Federal Facility Agreement and Consent Order
FCC	Federal Communication Commission
FID	Flame Ionization Detector
FM	Field Manual; Factory Mutual
FM	Frequency Modulation
FR	Federal Register
g	grams
GFCI	Ground Fault Circuit Interruptor
GPR	Ground Penetrating Radar
HAZCOM	Hazards Communication
HAZMAT	Hazardous Material
HEAT	High Explosive Anti-tank
HERO	Hazards of Electromagnetic Radiation to Ordnance
HF	High Frequency
HMX	Cyclotetramethylenetetranitramine
HPLC	High Performance Liquid Chromatography
HSO	Health and Safety Officer
HVAC	Heating Ventilation and Air Conditioning
HWE	Hazardous Waste Engineer
IA	Interim Action
IAW	In Accordance With
ICPP	Idaho Chemical Processing Plant
ID	Identification
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDHW	Idaho Department of Health and Welfare
IDLH	Immediately Dangerous to Life and Health
IH	Industrial Hygienist
INEL	Idaho National Engineering Laboratory
IOCP	Interim Ordnance Cleanup Program
JSS	Job Site Supervisor
L&Q	Limitations and Qualifications
LDR	Land Disposal Restriction
LEL	Lower Explosive Limit
MDL	Method Detection Limit
MK-FIC	Morrison Knudson-Ferguson of Idaho Company
ml	milliliter
mph	Miles Per Hour
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSDS	Material Safety Data Sheet
NA	Number Not Recognized For International Transportation
NAAQS	National Ambient Air Quality Standards
NAVSEA OP	Naval Sea Systems Command
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCR	Non–conforming Report
NEC	National Electrical Code
NESC	National Electrical Safety Code
NEW	Net Explosive Weight
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health

NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NODs	Notices of Deviation
NODA	Naval Ordnance Disposal Area
NOP	Naval Ordnance Plant
NPL	National Priority List
NPG – Arco	Naval Proving Ground
NRF	Naval Reactor Facility
O&M	Operations and Maintenance
OC	Operating Characteristic
OEL	Occupational Exposure Limit
OEW	Ordnance Explosive Waste
OMP	Occupational Medical Program
OSHA	Occupational Safety and Health Act
OU	Operable Unit
OVA	Organic Vapor Analyzer
PC	Personal Computer
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limit
PETN	Pentaerythrite Tetranitrate
PFIR	Prefinal Inspection Report
PID	Photoionization Detector
PjM	Project Manager
PPE	Personal Protective Equipment
PPM	Parts Per Million
PPRD	Preliminary Prefinal Remedial Design
PSD	Prevention of Significant Deterioration
PTI	Protection Technology Idaho, Inc.
PZ	Piezoelectric
QA	Quality Assurance
QAMS	Quality Assurance Management System
QAO	Quality Assurance Officer
QAP	Quality Assurance Program
QAPjP	Quality Assurance Project Plan
QAPP	Quality Assurance Program Plan
QC	Quality Control
QE	Quality Engineer
RA	Remedial Design
RAA	Remedial Action Area
RAC	Risk Assessment Code
RAE	Remedial Action Engineer
RAR	Remedial Action Report
RAS	Routine Analysis Services
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RF	Radio Frequency
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROPS	Rollover Protective Structures
RPD	Relative Percent Difference
RPM	Regional Project Manager
RQ	Reportable Quantities
RSD	Relative Standard Deviation
RSR	Records Search Report
RWMC	Radioactive Waste Management Complex

S&H	Safety and Health
SAL	Specified Assurance Level
SAP	Sampling and Analysis Plan
SAP/QAPjP	Sampling and Analysis Plan/Quality Assurance Project Plan
SAR	Safety Analysis Report
SARA	Superfund Amendments and Reauthorization Act
SARM	Standard Analytical Reference Materials
SAS	Special Analysis Services
SCBA	Self Contained Breathing Apparatus
SDWA	Safe Drinking Water Act
SE	Safety Engineer
SMO	Sample Management Office
SOG	Standard Operating Guidelines
SOP	Standard Operating Procedure
SRM	Special Resource Management
SSES&H	Site Specific Environmental Safety and Health
SSO	Site Safety Officer
SWP	Safe Work Permit
SZ	Support Zone
TAN	Test Area North
TAP	Toxic Air Pollutants
TBBR	Twin Buttes Bombing Range
TCLP	Toxicity Characteristics Leachate Procedure
TDU	Temporary Decontamination Unit
TEL	Threshold Exposure Limit
TEU	Technical Escort Unit
TLV	Threshold Limit Value
TM	Technical Manual
TNB	Trinitrobenzene
TNT	2,4,6-trinitrotoluene
TO	Technical Order
TRA	Test Reactor Area
TSCA	Toxic Substances Control Act
TSD	Temporary Storage and Disposal
UL	Underwriters Laboratories
UN	Identification Number for International Transportation
USATHAMA	United States Army Toxic Hazardous and Munitions Agency
USCG	United States Coast Guard
USGS	United States Geological Service
UXO	Unexploded Ordnance
V/V	Verification and Validation
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
VT	Variable Time
WAC	Waste Acceptance Criteria
WAG	Waste Area Group
WCC	Warning Communications Center
WOG	Wyle Operating Guidelines
WP	White Phosphorous
WWIII	Waste Wrangler III

SITE SPECIFIC ENVIRONMENTAL SAFETY AND HEALTH PLAN

1.0 PLAN OVERVIEW

This Site Specific Environmental Safety and Health (SSES&H) Plan sets forth procedures that are specific to the removal action. It has been prepared in accordance with OSHA and DOE requirements including Occupational Safety and Health Administration (OSHA) 29 CFR 1910.120, 29 CFR 1926, DOE/DOE–ID Order 5400.1 and the 5480 series. The plan incorporates the Operational Safety Requirements (OSRs) found in the approved Safety Analysis Report (SAR) for this project. The plan is also consistent with the NIOSH/OSHA/USCG/EPA Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (October 1985). It identifies project- and site-specific health and safety concerns, appropriate protocols, work practices and preventive measures to protect the health and safety of task personnel, the INEL Site worker, the Public and the environment during project and task operations.

The effort on this project will be carried out in compliance with the following primary specifications and requirements documents:

- The American Table of Distances
- Occupational Safety and Health Administration (OSHA) regulations
- Standards of the American National Standards Institute (ANSI)
- American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values for exposures to chemical and physical agents as required in DOE 5480.10
- "Contractor Industrial Hygiene Program," DOE-ID 5483.1A
- "Occupational Safety and Health Standards," DOE-ID 5480.4
- Technical Orders for Explosive Ordnance Disposal Procedures
- DOE Explosives Safety Manual
- Standard Operational Safety Requirements, Subpart III, Explosives
- DOE-ID Appendix 0550

2.0 RESPONSIBILITIES

Responsibility for the implementation of this SSES&H Plan in the field will be with the Project Superintendent. The Project Superintendent will have the authority, as represented in the organizational structure, to carry out this responsibility in keeping with the goal of minimizing the risks to personnel health and safety. Expertise required to support him in this SSES&H responsibility includes industrial hygiene, industrial safety, and other selected technical and administrative skills. The Wyle organization is defined in Figure 1. This chart will be posted on–site and maintained current to display the project lines of command and lines of communication for field personnel reference. The Project Health and Safety Officer (HSO) is identified on the chart as required in OSHA 29 CFR 1910.120.

2.1 FIELD PERSONNEL AND RESPONSIBILITIES

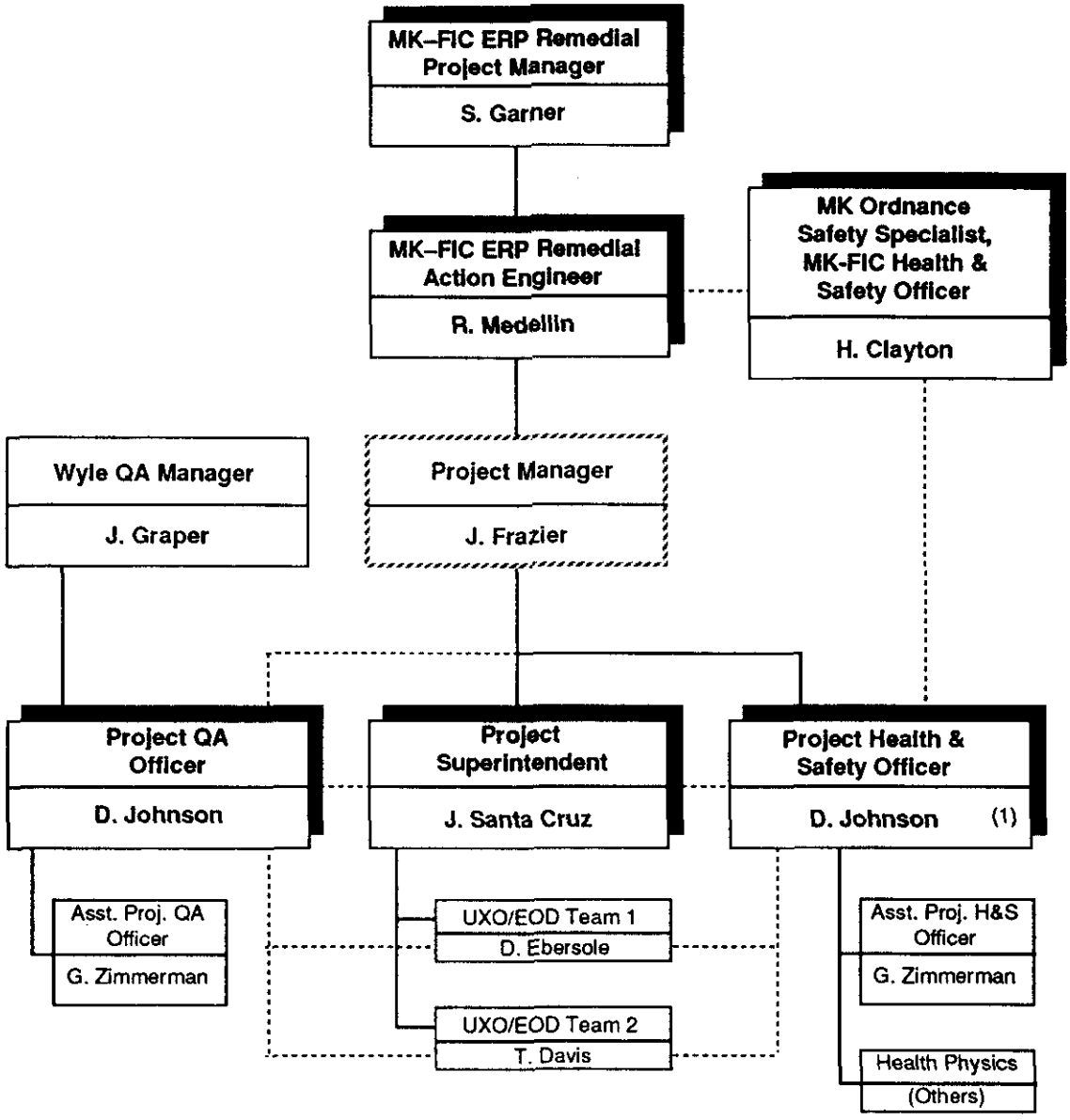
Responsibilities of the project key field personnel are delineated in the subsections that follow.

2.1.1 Project Superintendent

The Project Superintendent, the individual that will be overseeing site activities, has the ultimate responsibility for the safe and successful conduct of the work and for all facets of health and safety at the site. All project personnel have "stop-work authority" in an emergency; however, the Project Superintendent has the command authority when operations are halted because of a potential health or safety hazard. The Project Superintendent will confer with specialists as the hazard situation dictates and, in situations not covered by existing procedures, develop and implement a solution.

The Project Superintendent must be attentive and responsive to health and safety issues raised by operations personnel. He will verify that all operations personnel have been trained as specified in Section 3.0 and that records of training (including a copy of the signed Health and Safety Training Certification form, Figure 2) are maintained on file in the project office.

The Project Superintendent will conduct an orientation meeting at the beginning of the project as well as a daily tailgate Environmental, Safety and Health Meeting, a weekly Wednesday afternoon safety meeting, and meetings as needed thereafter to review and familiarize operating



(1) HAZCOM Coordinator, must be MK–FIC approved

LEGEND

——— = line of authority

--------- = line of Communication

Figure 1. Project Organization

HEALTH AND SAFETY TRAINING CERTIFICATION FORM

Task Title: UXO Cleanup Interim Action (MK-FIC Subcontract No. S-500992)

Project Manager: J. Frazier

Project Superintendent: J. Santa Cruz

I certify that I have been given a copy of the Site Specific Environmental Safety and Health Plan for the UXO Cleanup Interim Action task and agree to comply with the procedures described therein. I further certify that I understand the potential health and safety hazards of the program (as outlined in this health and safety plan) and that I have completed 29 CFR 1910.120 training within the last 12 months and have been trained in the use of the personal protective equipment selected for this task.

Employee:

_____

(Print) (Date) (Signature)

Project Superintendent:

_____

(Print) (Date) (Signature)

Health and Safety Officer:

_____

(Print) (Date) (Signature)

Figure 2. Health and Safety Training Certification Form

personnel with this SSES&H Plan. All meetings will be documented and attendees will sign a record of attendance. If new team members arrive at the task site after initiation of the task, the Project Superintendent shall ensure that each is given the SSES&H orientation.

At the beginning of each work day, the Project Superintendent (or alternate) will meet with operations personnel in a "tailgate" meeting to discuss the day's activities and address any health and safety issues that have arisen or could arise during that day's efforts. This meeting will be documented on a "Plan of the Day" signoff sheet, which will include the topics discussed and the signature of the attendees.

The Project Superintendent will interact with the Industrial Hygienist (IH) on matters pertaining to personal air sampling. The air model for the operations scenario is provided in the Remedial Action Work Plan. Indications are that ambient air sampling is not needed in this situation, but this status may change as work on site progresses. These decisions will be made by the Project Superintendent in conjunction with the IH.

Additional responsibilities of the Project Superintendent include:

- Halting or modifying work or evacuating the site if work conditions are judged unsafe. In emergency circumstances, he will immediately issue a stop work order.

- Reporting accident, illness, or safety–related occurrences in accordance with DOE-ID Order 5484.1B.

- Informing the MK–FIC ERP Remedial Action Engineer of any modifications or suspensions of effort.

- Ensuring that task site personnel understand and comply with safety requirements.

- Initiating and following up on corrective action for observed safety violations or unsafe conditions.

- Ensuring that safety training is implemented as prescribed in this plan.

- Obtaining the Construction Safe Work Plan (CSWP) on a weekly basis.

The Project Superintendent or his official designee will be on–site at all times during the conduct of work. A change of Project Superintendent or assignment of a designee will be communicated to the MK–FIC ERP Remedial Action Engineer and recorded in the daily activity log. Where the change is permanent, the Project Superintendent designee shall be identified in revisions to this plan.

2.1.2 Health and Safety Officer

The Health and Safety Officer (HSO) is responsible for implementing and ensuring compliance with the health and safety plan presented in this document. The HSO is responsible for the operation and maintenance of the monitoring equipment required on the program and for maintaining a daily log book of monitoring activities. Additional responsibilities are as follows:

- Attending pre-job briefings.

- Ensuring that necessary safety equipment is located on or near the task site and properly maintained and calibrated.

- Observing area site activities and reporting any safety or health problems and/ or deviations from this plan, i.e., personnel practices that are not in compliance with the processes and procedures dictated by the SSES&H Plan, by industry EOD safety provisions, and industry standard practices to the Project Superintendent. Assists in defining solutions and takes corrective action.

- Interfacing with the DOE emergency response agencies (security, fire, medical) at the beginning of the effort to coordinate personnel and environmental monitoring requirements (established by the IH), and to establish emergency phone numbers.

- Evaluating data from operations monitoring equipment and logging relevant data in the project logbook.

- Monitoring work efforts in the remedial action areas to ensure compliance with all relevant requirements.

all relevant requirements.

- Providing guidance on all safety issues arising at the site; observing the work and advising the Project Superintendent on the safety equipment needed to promote a safe work environment; advising the Project Superintendent on safety concerns in the operations environment; and developing and prescribing solutions to safety concerns.

2.1.3 Industrial Hygienist

The conditions of the areas of concern were assessed by the IH in preparation for the Interim Remedial Action Project concluded in February 1994. Personnel Protective Equipment (PPE) has been determined based on the type of EOD field work. If conditions or work effort should change, the IH will be called upon by the Project Superintendent to reassess the PPE. Specific potential chemicals a NODA (Section 6.1.1) will be evaluated by the IH.

2.1.4 Project Quality Assurance Officer

The Project Quality Assurance Officer provides guidance to project personnel on quality issues. He monitors activities to establish that operations are being performed in compliance with quality requirements pertaining to the activities and conversely, to identify activities that are not in compliance with project quality plans and procedures. With regard to the latter, coordinating with the Project Superintendent, he identifies the need and makes recommendations for corrective actions. The QA Officer shall also attend the daily pre-job briefings. Other responsibilities include:

- Acceptance of sweep lanes following visual search
- Monitoring data acquisition processes
- Inspecting results of EOD and remediation efforts

2.1.5 Operations Personnel

All operations personnel, including EOD specialists, metal detector operators, QA, and safety specialists, are responsible for understanding and complying with the requirements of the SSES&H Plan. Operations personnel will be briefed by the Project Superintendent (or his

formally specified designee) before starting work each day. Operations personnel will be responsible for identifying and reporting potentially unsafe activities or conditions with the Project Superintendent for corrective action.

2.1.6 Visitors

Visitor presence on–site will be limited to individuals on official business. Prerequisites to entry into the area include the following:

- Only visitors who have notified the Project Superintendent, MK-FIC RAE, and Safety Officer and have been approved in advance of the visit, will be allowed at the site.

- Visitors will not be allowed beyond the support zone.

- Visitors will be required to attend pre-job briefings or to have a short safety briefing on hazards in the work area.

Visitors will be required to adhere to the rules and procedures set down in this SSES&H Plan. A command post will be established at the boundary of the Support Zone to serve as the visitor control point.

2.1.7 Key Personnel

Personnel key to operations on the INEL include those listed below. Any changes in the personnel assignments will be recorded in the field logbook. This action will be treated as a field change.

- J. Santa Cruz — Project Superintendent

- D. Johnson — Project Quality Assurance Officer and Project Health and Safety Officer. This individual will be approved by MK–FIC.

2.2 SUPPORT ACTIVITIES

The Project Manager (PjM) serves as the management and technical coordinator and the interface with the MK-FIC Environmental Restoration Program (ERP) offices. He has the task of ensuring that all activities are conducted in accordance with requirements and agreements; monitoring and approving program budgets and schedules; ensuring the availability of necessary personnel, equipment, subcontractors, and services; and participating in the development of tasks, evaluation of findings, development of conclusions and recommendations, and the production of reports. He has primary responsibility for the technical quality of the project.

In carrying out these responsibilities, he develops plans and policies which guide the project effort to ensure that applicable OSHA, EPA, DOE, Department of Transportation (DOT), and State of Idaho requirements are met. His responsibilities also include ensuring that the work is performed to comply with the procedure, and the Site Specific Environmental Safety and Health Plan, that apply on the project.

The following positions and functions are in place to support the basic field operation teams.

2.2.1 Records and Document Control

Data and reports (safety and operations) generated during the course of the program will be maintained in the on-site Project Office. Documents relevant to the project are maintained at MK–FIC ERP. A document checkout system is in effect which provides access to controlled documents, reports, and records.

2.2.2 Occupational Medical Program

An Occupational Medical Program (OMP) is provided as directed in DOE 5480.8 and OSHA 1910.120. An Occupational Medicine physician provides professional medical care to support this interim action project. The project team has a physician under current contract to perform this role, Dr. Tony Golden, who has performed in similar roles on other RCRA and CERCLA projects.

Emergency treatment for potential incidents in the field will be supported by the INEL medical care facilities.

The OMP physician will provide the following services as needed:

- Pre-field employment physicals.
- Reviewing and commenting on emergency plans and operations.
- Medical consultation services and the diagnosing, giving medical opinions, and treating of employees with occupational illness or injuries.
- Assisting in the documentation and investigation of work-related illnesses or injuries.
- Providing medical opinion when the ability of the employee to perform assigned work or work being considered for assignments being contemplated is in doubt. The OMP physician will have access to the project personnel medical records in the event that medical intervention is necessary.
- Providing medical surveillance of workers who are identified by an IH as having been or who may have been exposed to specific hazardous environments or substances above action levels.

OMP records for the removal action field team will be kept in the project office for all field personnel engaged in this removal action. The records will be retained at the project office until the project is complete, and will be retained for the individual employees thereafter by Wyle Laboratories. Details on the OMP Program are provided in Section 3.4 below.

3.0 PERSONNEL TRAINING

All project personnel will be given the MK–FIC four–hour orientation on the following topics:

- INEL Site safety regulations
- Site evacuation signals and recognition of signals
- Health physics regulations
- Area restrictions
- Parking regulations
- Location of medical assistance
- Injury and accident reporting per DOE Form 5484X
- General employee training

Project personnel will complete the necessary security and safety forms at this time and view a security instruction video. The project has been designated a non–radiation–control project; however, basic instruction in radiation considerations will also be provided in the orientation.

The orientation for all project personnel will include a one–hour briefing through MK–FIC on area archeology considerations and the reporting of antiquities discoveries. The Project Manager, Project Superintendent, and the EOD Leadmen will receive an additional one hour of training in archeology topics.

Following orientation indoctrination, all of the project personnel will be instructed in the specific hazards to be found in the work areas. The four–hour training session will be provided to the project personnel by MK–FIC. Certification of completion will be provided to the participants.

Recognizing the increased risks in the work on this project (environmental and explosive considerations), particular emphasis is placed on safety training. Employees will be required to complete the 40–hour training prescribed in OSHA CFR 1910.120, Paragraph (e)(2), "Hazardous Waste Operations and Emergency Response" and the three days of field experience specified therein. Certificates of completion will be provided to the participants. Employees will not be permitted to work unsupervised without having completed this training.

The Project Manager, Project Superintendent, and the EOD Leadmen will be required to complete the additional eight hours of supervisor training prescribed in 1910.120, Paragraph (e)(3). Certificates of completion will be provided to the participants.

Site specific safety training will be provided by Wyle to the project employees in the following topics:

- Operational Safety Requirements in the Safety Analysis Report
- Hearing protection
- Fire prevention
- Inspection and use of PPE
- Work practices to minimize risk
- Safe use of equipment
- Recognition of symptoms of over exposure
- Names of responsible site safety personnel
- Responding to emergencies
- Evacuation plans
- Tailgate (daily site safety) meeting requirements
- Weekly safety meeting requirements
- Emergency procedures
- Buddy (two man) rule
- Flora and fauna hazards
- Eating and drinking precautions
- Location and use of eyewash stations
- Sanitation

The project personnel shall be trained by Wyle to the Site Specific Environmental Safety and Health Plan to ensure their understanding of the contents and requirements of the plans. Employees must sign off that they have read, understand and agree to the Site Specific ES&H Plan. The Project Superintendent will ensure that required training is completed in accordance with Table 1. This information will be retained with the Removal Action Site Logbook. Training records will be maintained in the employee's training file.

Table 1
Project Personnel Training Requirements

Training Topic[b]	Personnel Job Description/Condition	Operations Personnel	Field Managers
OSHA Hazardous Waste Operator	Clean up hazardous waste site	R	R
OSHA HAZCOMM	Required for hazardous site worker and field worker	R	R
Respiratory Fit Test Qualification	Work area requires use of respirator	R	R
Medic 1st	First Aid, CPR	R	R
Personal Protective Clothing and Equipment	Required to wear chemical protective equipment	R	R
Site Specific Hazards	Encounters task specific potential hazards	R	R
Hearing Conservation	IH determines exposure to noise above 8 hour time-weighted average of 85 decibel	R	R
Legal and Regulatory Aspects	Knowledge of applicable health and safety regulations	R	R
Emergency Training	Knowledge of area drills, rescue, response, information	R	R
Hazardous Material Transportation Safety	Transports hazardous materials	R	R
Waste Minimization	INEL worker	R	R
Cultural Resources/NEPA	INEL field worker	R	R
Hazardous Waste Worker Supervisor Training	Supervises workers in remediation of potentially hazardous wastes	O	R
Local Area Hazards	Types of ordnance and contamination likely to be encountered	R	R
Operational Safety Requirements	UXO technicians, leadmen, supervisors	R	R

R: Required O: Optional b: Initial and Refresher Training

4.0 OCCUPATIONAL MEDICAL PROGRAM

An Occupational Medical Program (OMP) is required to be implemented on this interim action program in accordance with OSHA 1910.120 and DOE Order 5480.8. Medical surveillance examinations are required for hazardous waste workers prior to beginning work, annually thereafter, and at the termination of hazardous waste duties (if they have not had such an examination within a year).

The OMP physician for the removal action will be a contract employee, under contract for the duration of the project. The physician is hired for the purpose of evaluating the physical ability of a worker to do the work assigned and thus, either clear the individual or impose restrictions on the employee by limiting the amount or type of work performed. The job related background information listed below will be provided to the OMP for each hazardous material worker. This information will be submitted to the OMP before work begins and annually to ensure that the hazardous waste/hazardous material worker's medical clearance is maintained.

4.1 OMP REQUIREMENTS FOR FIELD WORKERS

The following information is part of the OMP records for on–site employees:

- Medical history and physical examination
  - — Pre–employment medical examination
  - — Current comprehensive medical examinations
  - — Records and reports from employees' private physicians, as required by the Occupational Medical Program contracted physician
  - — Medical evaluation by OMP physician on return to work
  - — Medical evaluation in the event a supervisor questions the physical condition of an employee
  - — Medical evaluation in the event the employee questions his/her physical condition

- Job related background information
  - — What type of job does the individual perform?

- When was the individual first exposed to hazardous substances or working in an environment with potential hazardous exposure?
- Relevant environmental monitoring data including sample dates and places (if the employee has been exposed to substances or physical agents above an action level)
- How and when was/will the employee (be) trained in PPE including respirators?
- What type of respiratory protective device is to be used?
- How many days per month is respiratory protection to be used?
- How long is this work to continue?

The above information and examinations are used to determine the following for each employee:

- Ability to perform routine occupational tasks
- Work in protective equipment and/or heat stress environments
- Use of respiratory protection
- Need to be entered into additional specific medical surveillance examination programs

Employees who have had an examination by another Occupational Medicine physician during the previous year are required only to submit their medical records for OMP files. If the OMP physician does not have the information necessary to clear the employee for respirator training at the time of the request, the Project Superintendent will be notified. The employee's clearance shall be withheld until the needed information is provided and necessary additional examination or testing is completed.

4.2 OMP REPORTING REQUIREMENTS

Before initiating a task where a chemical hazard is present, the Project HSO through MK-FIC, shall inform the nearest INEL medical facility of the initiation of remediation in the work area, approximate schedule for the specific work area, the location of the work area, and anticipated or known chemical constituents or hazards.

If an exposure occurs and the IH confirms the need, or if the individual exhibits symptoms of exposure, the worker shall be transported to the nearest medical facility for evaluation. Further medical evaluation will be in accordance with the symptoms, the specific hazard involved, the exposure level, medical surveillance requirements, current health and safety directives, and sound medical practices.

The following information shall be provided to the OMP and OMP physician:

- Name, job title, work location, supervisor's name, and supervisor's phone number
- Substances/physical agents (e.g., noise) involved
- Date the employee was first exposed to the substance/physical agent on this task
- Monitoring data including locations of samples and the dates samples were taken, if exposed over action level
- PPE in use during this task
- Number of days per month PPE has been in use
- How long this employee will be exposed to the substance or physical agent
- Training the employee has received in the use of PPE
- Type of respirator, if any, being used
- Material Safety Data Sheets (MSDS)

The OMP records will be kept in the field office for all personnel engaged in this removal action project. The records will be retained until the project is completed.

5.0 DESCRIPTION OF HAZARDS

Personnel will be exposed to a variety of substances and conditions while working in the areas. Exposures may result from contacting materials stored, handled, or disposed; equipment being used; weather conditions or time of day; environmental surroundings; and/or task specific working conditions. Project personnel will be made aware of the substances and the area physical conditions, in particular the hazardous materials listed in the codes and regulations (National Institute of Occupational Safety and Health (NIOSH) and Idaho State, EPA, and OSHA regulations).

Hazards in everyday activities can be reduced by using common sense and following the safe practices listed below:

- Equipment will be used only by authorized personnel familiar with its use.
- Safety devices on equipment will be left intact and used as designed.
- Equipment and tools will be kept clean and in good repair and used only for their intended purpose.
- Good housekeeping practices will be followed.
- Chemicals will be used only as authorized by personnel familiar with the use and hazards associated with the chemicals.
- Use of Personal Protective Equipment (reference Section 3.7) to limit exposures to as short a duration as possible.

Potential chemical hazards include nitroaromatic compounds and explosive, reactive, or unstable compounds. The VOC compound likely to be present is dinitrobenzene (DNB). However, concentrations of DNB are expected to be extremely low. Worst case samples from OU 10–05 were used for selection of PPE. The three sites of this removal action appear much less contaminated. The Project Superintendent will evaluate the sites for presence of contaminants. Specific potential chemical hazards of NODDA oare addressed in Section 6.1.1.

Physical hazards characteristic of this work include fire, detonation shock, excavation equipment accidents, potential cave-in or slumping of cut soil surfaces, and temperature extremes, including wind. Wyle Standard Operating Procedures SOP 518-200-019A ("Off-Site Destruction and Disposal Operations") addresses the prevention of detonation shock hazards, and SOP 518-200-200 (Heavy Equipment Operation) deals with the hazards of equipment accidents. Fire prevention measures are addressed in the RAWP Emergency Plan and are discussed here in Subsection 3.6.2. The procedures of OSHA 29 CFR 1926 must be followed for excavations exceeding five feet in depth. Precautions to be observed by personnel working in extreme temperature environments are provided in Subsection 3.10.2.3.

6.0 HAZARDS ANALYSIS

A condition, an event, or a material item that has the potential to injure or kill or to cause serious illness in a human being, or alternately, the potential to cause damage to structures or other hard assets, or to the environment, can be defined as a hazard. To develop a credible SSES&H Plan for a project such as this which is characterized by a broad set of hazards, requires evaluating various aspects of the project to characterize the hazards and develop plans for preventing them. The hazard analysis identifies the potential hazards, provides a detailed discussion of each hazard as it relates to this activity, and identifies appropriate controls.

The hazards that may exist during remediation activities fall into the following categories:

- Chemical hazards
- Fire and explosion hazards
- Biological hazards
- Industrial safety hazards
- Electrical hazards
- Temperature and wind stress
- Noise hazards
- Other hazards
- UXO ingestion/injection

Those of greatest concern to personnel, structures, and the environment are: (a) the hazards associated with handling unexploded ordnance and explosives during EOD operations; (b) range fires caused by EOD operations; and (c) contaminating the environment with explosive compounds in the removal action areas.

Of particular concern are the effects of aging and environmental exposure on the stability of explosives. Some explosives may have become more sensitive while others may now be less sensitive. The hazards will be controlled through training, experience, and following the appropriate procedures and requirements for characterizing, handling, transporting, storing, and disposing of ordnance and explosive materials.

6.1 CHEMICAL AGENTS

The potential for exposure to Volatile Organic Compounds (VOC) and other chemicals will be evaluated by Industrial Hygiene (IH) personnel. However, the likelihood of encountering significant levels of VOCs is highly unlikely. The IH and site explosive safety personnel, will evaluate the condition of the environment.

Appropriate warning posters and DOE notification procedures (per DOE-ID Order 5483.1B and 5484.1B) will be posted. Manufacturers' Safety Data Sheets (MSDS) will be kept on record in the field office. Project personnel will be trained on associated hazards and spill procedures.

6.1.1 NODA Site-Specific Potential Hazards

Personnel should be alert for any unusual or strange odors or physical effects while working in the NODA area. The area has been sampled by EG&G and no significant findings were noted, however, vigilance should be exercised.

Chemical hazards that might have been used at the NODA site are listed below. This list is only based on anecdotal information. The gases should have dissipated long ago. Preliminary sampling in the NODA area by EG&G, Idaho, has not detected any of these chemicals.

Waste materials possibly treated at the NODA site:

- Acetylene compounds
- Ammonia compounds
- Azides
- Barium
- Cadmium
- Calcium metal
- Chlorine gas cylinder
- Chlorite salts or metals
- Ether
- Ethylene Glycol Dimethyl Ether
- Hydrochloric acid
- Hydrogen cyanide
- Hydrogen peroxide
- Lead perchlorate
- Lithium
- Magnesium perchlorate
- NaK (Sodium/Potassium)
- Nitrates
- Nitric Acid
- Phosphoric acid
- Picric acid
- Di-Picryl amine
- Potassium metal
- Rubidium
- Sodium hydroxide
- Sodium metal
- Sodium peroxide
- Styrene
- Sulfuric acid
- Tetrahydrofuran
- Zirconium trunings

6.2 FIRE AND EXPLOSION HAZARDS

Maximum safety is achieved in UXO operations through rigid adherence to safety precautions and procedures and by educating personnel to maintain a consciousness of the hazards. All personnel engaged in UXO operations are trained in the disposal of explosive materials and items and in the hazards that accompany that kind of activity, i.e., the potential for injuring personnel or damaging facilities. In addition, the INEL fire department will be notified prior to detonation of UXO.

The potential for fire and/or explosion hazards will be evaluated by the IH and site explosive safety specialist. Level D PPE will be prescribed for the effort in the field. As specified in the OSRs Section of the SAR, the number of people allowed near an EOD operation and the time of exposure for EOD personnel shall be kept as low as reasonably achievable. No more than five people shall be potentially exposed during EOD activities where an accidental explosion is possible (e.g., UXO characterization, preparing and setting countercharges). Specific safety issues are addressed in the Standard Operating Procedures which incorporate the requirements of the SAR.

Vegetation in the areas to be remediated will be cleared to the extent necessary to prevent the spread of fire during UXO disposal detonations. Fire extinguishers will be held ready during disposal operations. Remote control techniques will be used as needed to prevent injury to personnel in the UXO retrieval effort. Non-sparking tools will be used when excavating for UXO. Signs warning of the presence of UXO will be posted along the highways at specific locations and in the removal action areas and at the command post. Signs along the highway transecting ordnance areas on the INEL are already in place. They were posted in February, 1993.

In the event of a fire or unplanned explosion, non-essential personnel will be immediately evacuated from the task site. Emergency procedures will be instituted and followed, including notifying INEL emergency response agencies by radio or portable cellular telephone. Personnel evacuated from the site will remain at a safe distance from the involved area until the situation is remedied and the all-clear signal has been given.

Munitions-specific policies and procedures include considering all munitions that have been fired, launched, thrown, placed, etc., as armed. The preferred and safest method for disposal of armed unexploded ordnance is to destroy it in its original position by detonation. This approach will be used whenever considerations and circumstances permit. UXO which cannot be detonated in place and which has been determined safe to move, will be transported to the designated blasting area. If detonating in place presents an unacceptable risk to facilities, power lines, or personnel, a determination as to whether a UXO item is safe to move will be based on a consensus of on-site EOD personnel and a decision made by the Project Superintendent.

UXO will not be destroyed until attempts have been made to positively identify the item. This rule is enforced to guard against introducing new contaminants into the environment. Each UXO will be carefully examined by EOD Specialists for markings and other characterizing features (shape, size, and external markings) with the precaution that the item is not to be moved during inspection. If the identity cannot be fixed, photographs will be taken and express-mailed or telefaxed to project backup personnel who have access to the TM 60-Series publications, and the item will be identified. In the unlikely event the material still cannot be identified, the Project Superintendent will have to make a decision on whether to move and store the material for further identification efforts, or detonate in-situ.

The fuse is considered the highest risk component of UXO, regardless of type or condition, and it is considered to be armed until proven otherwise. Before moving UXO, the condition of the fuze will be ascertained.

The underground cavity caused when UXO penetrate the earth to a depth where the force of the explosion is not enough to rupture the earth's surface but is sufficient to form an underground cavity is called a camouflet. Camouflets may be filled with the end product of the explosion, carbon monoxide gas. Because of the elapse of time it is unlikely that camouflet are present but an awareness of the camouflet phenomena will be fostered to ensure that precautions are taken.

The usual method for uncovering shallow depth buried UXO is to excavate by hand. Hand methods will generally be used. The possibility of encountering experimental ordnance or ordnance that contains toxic chemicals exists. If chemical munitions (chemical surety materials) are encountered, work activity in that particular area will cease until the EOD Team has

thoroughly characterized the condition. These materials/items are not covered by the existing SAR. An Unreviewed Safety Question would be required to address these materials. Special security shall be immediately established and maintained and MK–FIC ERP will be notified. The Corps of Engineers, Huntsville Division, and the Technical Escort Unit (TEU) for chemical weapons, will be contacted.

6.3 BIOLOGICAL HAZARDS

Exposure to snakes, rodents, and insects is possible. Field personnel will be cautioned regarding these hazards and warned to avoid contact with animals encountered on the project sites. In the event of personnel injury, field personnel will be treated and transported to a medical facility as the severity of the injury warrants.

6.4 INDUSTRIAL SAFETY HAZARDS

Excavation, backfilling and leveling of the UXO search and detonation locations will be done by trained operators in accordance with the prescribed procedure. Level D PPE, as modified by the project IH and the site explosive expert and the HSO, will be worn as necessary during heavy equipment operation.

6.5 ELECTRICAL HAZARDS

Portable electric equipment may be powered by a portable gas driven electric generator. Care will be taken to keep the equipment, generator, and extension cord out of or away from water that may be present at the work site. Ground fault interrupters will be used on all portable electrical generating devices. The activities will be suspended if significant precipitation occurs which could impact worker safety.

6.6 TEMPERATURE AND WIND STRESS

Extreme weather conditions will be monitored by the HSO and clothing, fluid intake, and/ or work rest regimens will be evaluated and approved consistent with the ACGIH Biological Exposure Indices (BEI). Mitigating actions will be taken as appropriate. The Project Superintendent will consult with the IH when temperature extremes show a potential for heat and cold stress.

Temperatures will be monitored and personnel will be counseled daily regarding temperature extremes and personnel protection. Any team member who exhibits heat stress symptoms such as dizziness, profuse sweating, skin color change, vision problems, or confusion, or conversely, cold stress (including wind chill) symptoms such as white skin, loss of feeling in hands or feet, or shivering, will be removed immediately from the work area. Clothing will be loosened and the worker will be allowed to rest and recover. Electrolyte replacement fluids will be administered. If symptoms persist or are severe, the team member will be taken to the nearest medical facility.

Equipment (e.g., on-site mobile office trailer) will be secured against wind uplift forces at the pad location by screw-in type anchors and tie-down straps. Field work will stop when consistent winds are above 25 mph.

6.7 NOISE HAZARDS

If a portable generator is used, the generator will be located under the direction of the IH to ensure noise levels are maintained below a time weighted average of 85 dBA.

Detonation hearing protection will be required. Hearing protection devices will be available and site personnel will be required to use the devices. Detonation hearing protection requirements are specified in SOPs 518-200-011, -012B, -018, and -019A provided with the RA Work Plan.

6.8 OTHER HAZARDS

Normal excavation hazards will be encountered and the requirements of 29 CFR 1926 will govern.

6.9 UXO INGESTION/INJECTION

The most probable route for ordnance related compounds to enter a worker's body is through inadvertent ingestion, or through injection, as through an open wound. Requirements for persons with open wounds for cessation of work (to prevent transport of contaminated materials to the wound) are described in Section 3.12.1.

7.0 LEVELS OF PROTECTION AND PERSONAL PROTECTIVE EQUIPMENT

7.1 EXPECTED PROTECTION LEVELS

Selection of PPE is based on the recommendations contained in NIOSH/OSHA/USCG/EPA, "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," October 1985.

No hazardous liquids or highly volatile compounds are known to be present in the UXO areas. Each work location will be evaluated for potentially hazardous contaminants by the HSO before entry.

If conditions change or heavy contamination is encountered, decisions for PPE modification will be made by the IH and documented by the Project Superintendent. Explosive protection PPE frag vests and face shields will be used during the UXO retrieval activities, if deemed necessary by the Project Superintendent.

7.2 PERSONAL PROTECTIVE EQUIPMENT

The levels of PPE that are candidates for use on this program are described in succeeding subsections.

7.2.1 Level D PPE

Personnel working inside the task site and wearing Level D PPE shall wear, as a minimum:

- Coveralls*
- Safety glasses
- Safety shoes**
- Hard hat*
- Hearing protection compatible with requirements of DOE Order 5480.10, DOE-ID 0550, 29 CFR 1910.95, and the ACGIH TLVs*
- Inner and outer chemical resistant gloves

* *Optional*

** *Leather Boots may be used by magnetometer equipment operators in lieu of steel-toed shoes.*

7.2.2 Respiratory and Dermal Requirements –PPE

Level D will meet the respiratory and dermal requirements unless IH personnel determine otherwise based upon field evaluation of the work areas. Respiratory protection will be selected by the HSO or IH using criteria found in 29 CFR 1910.120 and DOE/DOE–ID 5480.4.

7.2.3 Selection Criteria

Level D has been selected based on information in the OU 10–05 Record Search Report and experience gained during the OU 10–05 Interim Action. Respiratory vapor protection will be required whenever personnel are exposed to concentrations of organic vapors greater than 25 percent of the lowest of the Permissible Exposure Limit (PEL), Threshold Exposure Limit (TEL), and Lower Explosive Limit (LEL) established by OSHA, National Institute for Occupational Safety and Health (NIOSH), or ACGIH for the potential contaminants. If the LEL is exceeded by an initial survey, personnel will not be allowed into the area until the LEL can be lowered to acceptable levels.

Respiratory protection for particulate radionuclides will not be required. If radionuclides above background levels are encountered the work will cease and MK–FIC ERP will be notified.

7.2.4 Modification of Personal Protection Requirements

Modifications to the prescribed personal protection requirements will be made only after the evaluation by the IH and HSO is complete and field monitoring results are in hand. Downgrading of PPE requires the concurrence of the MK-FIC ES&H Manager. Level D has been selected except with respect to coveralls and hearing protection.

8.0 SAFE WORK PRACTICES

8.1 WORK ENVIRONMENT

Factors that affect the safe working environment (e.g., inclement weather, confined work space, extended working schedules, work in heavy PPE, temperature extremes, and work done under artificial illumination) will compromise the work performance of task operations personnel. Limits on the environmental factors that impact safety in the work areas will be established by the Project Superintendent and the IH and HSO to ensure safe and efficient work conditions. A Safe Work Permit (SWP) will be processed weekly.

8.2 GENERAL SAFE WORK PRACTICES

Safe work practices will be defined to the project personnel and the personnel will be directed to follow the practices. If a deviation is necessary because of the particular circumstance, the deviation shall be documented in the field log book.

Typical of the safe work practices imposed are the following:

- Contact lenses shall not be worn in eye-hazard areas nor shall they be worn with full face respirators.

- Eating, drinking, chewing gum or tobacco, smoking, use of cosmetics, and any other practice that increases the probability of hand-to-mouth transfer and ingestion of material are prohibited within the work zones. An eating area in the support zone will be designated at each job site based on area surveys.

- Work where contaminated substances may be present shall not be performed by a worker who has an open wound. Injuries shall be immediately reported to the HSO.

- Contact with potentially contaminated substances shall be avoided. Walking through puddles, pools, mud, etc., kneeling, leaning, or sitting on equipment or the ground shall be avoided.

- Personnel should be alert to dangerous situations, the presence of strong, irritating, and/or nauseating odors, high airborne concentrations of dust, breached drums, and the like, and report such conditions to the Project Superintendent or HSO.

- Personnel shall guard against releases of hazardous materials used in operations. Inadvertent spills shall be contained and reported to the Project Superintendent. Spills shall be immediately cleaned up in accordance with the Emergency Preparedness Procedures for the area.

- Splashing of contaminated materials during decontamination shall be prevented.

- Potential ignition sources shall be kept at least 100 feet from an explosive or flammable environment. Non-sparking, explosion proof equipment shall be used.

- Before entering an area the worker shall take account of the physical characteristics of the area including such things as:
  - Wind direction
  - Accessibility to fellow workers, equipment, and vehicles
  - Communications at and near the task site
  - Exclusion zones (areas of known or suspected contamination)
  - Site access (both Area and Task)
  - Nearest water sources
  - Nearest emergency assistance.

- A worker in the exclusion zone shall be in line-of-sight contact with his partner at all times.

- Coworkers shall be carefully monitored in frequent verbal exchanges for signs of exhaustion, heat or cold stress, or exposure to harmful vapors.

- Strict personal hygiene practices such as washing face, neck, and hands before eating, drinking, smoking, or using the restroom shall be adhered to. Hands shall be kept away from mouth and eyes when working in an exclusion zone.

- When working with UXO (TNT) hands shall not contact the face.

8.3 EOD SAFE WORK PRACTICES

OSRs as defined in the approved SAR for this project and other requirements as outlined in the Blasting Permit shall be complied with in performance of this project. Procedures as detailed in Appendix B and the Transportation Safety Plan will be followed for UXO, OEW, and demolition explosives storage, transportation and handling.

The following general safety precautions are applicable to UXO/OEW related operations.

- During EOD/OEW operations, the number of personnel essential to the operation present in the vicinity shall be kept as low as reasonably achievable. The two-man or buddy system rule shall be adhered to in all operations.

- Personnel not directly involved in the operations effort will not be allowed past the command post in the support zone when EOD/OEW operations are pending or in progress. No more than five people shall be potentially exposed during EOD activities where an accidental explosion is possible (e.g., UXO characterization, preparing and setting countercharges).

- Fire or spark-producing devices shall not be permitted on-site.

- Smoking shall not be permitted, except in authorized areas. Smoking, matches, or other sources of fire or flame shall not be allowed within 100 feet of an area in which explosives or explosive-loaded ordnance is being handled.

- Fires for unofficial purposes shall not be allowed.

- Operations shall be conducted following approved Standard Operating Procedures (SOP) and with proper supervision.

- Explosive operations shall not be conducted during electrical, sand, dust, or snow storms. Operations shall cease if an electrical storm comes within five miles of the work site.

- Explosive operations shall not be conducted between sunset and dawn.

- No work in the field shall be done under artificial illumination.

Safety limits, operating limits, and administrative controls as described in the OSR section of the approved SAR will be upheld.

8.4 VARIATIONS TO SAFE WORK PRACTICES

Variations from the safe work practices will not be permitted unless a deviation is needed to alleviate an emergency condition. Deviations from procedures and SAR requirements will not be permitted unless approved per modification or Unreviewed Safety Question screen acceptance by MK-FIC, and DOE as warranted.

8.4.1 Extended Working Schedules

A 40-hour work week is scheduled for this project. The work week shall not be extended on this project unless it is deemed necessary by project management to accomplish the goals of this project.

8.4.2 Working In Heavy PPE

Having to work in cumbersome PPE imposes stresses which will limit the ability of operations personnel to work long shifts. In the event that heavy PPE is required the Project Superintendent will evaluate the eight-hour work shift based on guidelines provided in the following:

- DOE ID Appendix 0550, ID Standard Operational Safety Requirements
- NFPA 101, Life Safety Code, ACGIH
- 29 CFR 1910 Occupational Safety and Health Standards
- 29 CFR 1926 Safety and Health Regulations for Construction
- DOE Order 5480.20 Personnel Selection, Qualification and Staffing Requirements at DOE Reactor and Non-Reactor Nuclear Facilities

8.4.3 Buddy System

The buddy system is in effect on all operations activities on this project. It is particularly crucial that this system be effected in the exclusion zone. The EOD Leadman on each crew will pair workers and instruct them to regularly check on one another during the day's activities. Each member of the pair will observe the other for alertness, motor functions, coherence, and safety.

8.5 SAFE HANDLING OF DRUMS AND CONTAINERS

If Drums and containers are handled during the task, they shall be handled in a safe manner in accordance with OSHA regulations (29 CFR Parts 1910 and 1926) and EPA regulations (40 CFR Part 264).

8.6 SAFE OPERATION OF HEAVY EQUIPMENT

Heavy equipment will be operated and used with the following precautions:

- Operation will be limited to authorized personnel.
- The operator will use the safety devices provided with the equipment, e.g., seat belts. Backup warning indicators and horns will be operable at all times.
- Personnel not directly involved in on-going operations in the area shall distance themselves from the equipment while it is in operation.
- Personnel shall not ride on equipment unless it is specifically designed to accommodate riders.

8.7 SAFE USE OF MECHANICAL EQUIPMENT

Safe practices that will be imposed in the operation of mechanical equipment include the following:

- The equipment will be operated only by authorized personnel familiar with the machine, its operation, and safety provisions.

- Hands, feet, etc., will be kept away from all moving parts.

- Maintenance and/or adjustments to machinery will not be conducted while in operation. Power will be disconnected prior to conducting maintenance activities.

- An adequate operating area will be provided, allowing sufficient clearance and access for operation.

- Good housekeeping practices will be followed.

8.8 ELECTRICAL HAZARDS

Electrical wiring and apparatus installation and operations will be carried out in accordance with OSHA Standard 29 CFR Part 1910 Subpart S and 1926, Subpart K. Requirements include:

- Construction trailers and other portable buildings with electrical wiring shall meet National Electric Code (NEC) NFPA 70 requirements and the requirements of DOE-ID AE Standards, Appendix K.

- All electrical wiring and equipment will be of a type listed by Underwriters Laboratories (UL) for Factory Mutual Engineering Corp. for the specific application

- All work will be by personnel familiar with NEC requirements and qualified for the class of work to be performed.

- Guards shall be installed around all live wiring or electrically charged equipment.

- Electrical wire or flexible cord passing through work areas will be covered or elevated to protect from damage by foot traffic, vehicles, sharp corners, or pinching.

- Temporary power lines, switch boxes, receptacle boxes, metal cabinets, and enclosures around equipment will be marked to indicate the maximum operating voltage.

- Patched, oil-soaked, worn, or frayed electric cords or cables shall not be used.

- Approved metal-shell handlamps, equipped with a handle and a substantial guard over the bulb that is attached to the lamp holder or the handle shall be used.

- Extension cords or cables will not be fastened with staples, hung from nails, or suspended by wire.

- All electrical circuits will be grounded in accordance with the NEC and the National Electrical Safety Code (NESC) unless otherwise noted in the reference manuals.

- Portable and semiportable electrical tools and equipment will be grounded by multiconducted cord having an identified grounding conductor and a multicontact polarized plug-in receptacle.

- Semiportable equipment, floodlights, and work lights will be grounded. The protective ground of such equipment should be maintained during moving unless supply circuits are de-energized.

- Tools protected by an approved system of double insulation, or its equivalent, need not be grounded. Double insulated tools will be distinctly marked and listed by Underwriters Laboratories or Factory Mutual.

- Ground fault circuit interrupters (GFCIs) are required in all circuits used for portable electric tools. The GFCI will be calibrated to trip within the threshold values of 5 ma + 1 ma as specified in UL Standard 943. All GFCIs will be UL listed and installed in accordance with the most recent edition of the NEC. The permanent wiring will be electrical circuits grounded in accordance with the NEC.

- Flexible cord will be of a type listed by the UL. Flexible cord sets will contain the number of conductors required for the service plus an equipment ground wire. The cords will be hard usage or extra hard usage as specified in the NEC. Approved cords may be identified by the word "outdoor" or letters "WA" on the jacket.

- Bulbs attached to festoon lighting strings and extension cords will be protected by wire guards or equivalent unless deeply recessed in a reflector.

- Temporary wiring will be guarded, buried, or isolated by elevation to prevent accidental contact by workers or equipment.

- Open junction boxes or "Y" connectors are not allowed on extension cords. Extension cords may not be spliced together.

8.9 LADDERS

Ladders will be used in accordance with the following:

- Manufactured ladders will be constructed of heavy duty grade, Type II minimum, conforming to applicable ANSI standards.

- Ladders will not be spliced together to make a longer ladder.

- Straight ladders for access will extend at least 3 feet above the landing.

- The base of straight ladders will be set back a safe distance from the vertical; approximately one-fourth the working height of the ladder.

- Stepladders will be fully opened to permit the spreader to lock. Stepladders will not be closed and leaned against an object for access.

- Metal ladders will not be used for electrical work or in areas where they could contact energized wiring.

- "Job-made" ladders will be constructed in accordance with OSHA 1926.450(b).

8.10 EXCAVATIONS

The safety requirements for each excavation must be established and confirmed by the Project Superintendent after consultation with a qualified civil engineer. All excavations for UXO will be performed in accordance with the SOPs which incorporate the requirements of the approved SAR. Excavations will be performed in accordance with applicable MK-FIC CMSM procedures and INEL permit requirements, except where EOD safety requirements take precedence over MK-FIC procedures.

- Prior to initiation of any excavation activity, the location of underground utilities installation will be determined and all such utilities and the depth of the utility shall be marked on the ground.

- All excavations greater than three feet in depth will be inspected daily by the Project Superintendent prior to commencement of work activities. Evidence of cave-ins, slides, sloughing, or surface cracks or excavations will be cause for work to cease until necessary precautions are taken to safeguard employees.

- For excavations 5 feet or deeper a competent person, with the aid of a civil engineer or soils specialist, shall determine a protective system. The protective system shall be selected from OSHA 29 CFR 1926.652 and/or designed by a registered professional engineer. Excavations will be laid back on a 3 to 1 slope as per OSHA requirements. Excavations will be performed in accordance with applicable MK-FIC CMSM procedures.

8.11 SANITATION

8.11.1 Water

Sources of potable and non-potable water shall be isolated from each other to prevent cross-contamination.

- Potable water - An adequate supply of potable water shall be provided at the site on a daily basis. Containers used to dispense potable water shall be closed

tightly when not in use, shall be equipped with a tap, and shall be labeled with the words "potable water".

- Non-potable water - Sources of non-potable water, such as water for fire-fighting purposes, shall be clearly identified and shall indicate that the water is unsafe and is not to be used for drinking, washing, or cooking purposes.

8.11.2 Toilet Facilities

At least one toilet facility shall be provided for use in the field. The toilet facility shall be provided with entrance locks controlled from the inside. The type of toilet facility shall be chosen from the following list:

- Chemical toilet
- Recirculating toilet
- Combustion toilet
- Flush toilet

8.12 ILLUMINATION

All sites included in this work plan are located outdoors. No work will be performed at night. Artificial illumination is not required.

8.13 PRECAUTIONS IN THE IDENTIFICATION AND MANAGEMENT OF UXO

In dealing with a UXO, particularly if it has not been identified, past experience, conditions of delivery, and the probable or obvious targets of the delivery provide clues to the type of ordnance; however, whether it is a known or unknown ordnance precautions must be taken in identifying and marking the item. All characterization and management of UXO will comply with the Operational Safety Requirements described in Section 10.3, Operating Limits, and Section 10.4, Administrative Controls, of the approved Safety Analysis Report for this project. Standard Operating Procedures for identification and management of UXO incorporate the requirements of the SAR. Precautions to be taken in the typical circumstance are described below.

Whether the UXO has been categorized or not it shall be considered to be the most hazardous type that it can be within the category. Furthermore, it shall be viewed as being in its most hazardous condition.

- Every effort will be made to identify the ordnance before performing any procedures. Care will be observed in probing for, moving, and handling the item. The initial moving or jarring of items will be done remotely.

- Outer or undergarments made of wool, silk, or synthetic textiles such as rayon and nylon shall not be worn while working on UXO. These materials can generate a static charge sufficient to ignite fuels or initiate explosives. Any person coming in contact with UXO shall ground himself prior to touching electro-explosive devices (EEDs).

- Magnetic tools or equipment shall not be taken near an unidentified ordnance device until it is absolutely determined that the object is not magnetically functioned. Procedures for this survey are found in the procedures provided with RAWP.

- Explosive ordnance which has been exposed to fire shall be considered extremely hazardous.

- Inhalation and skin contact with smoke, fumes, and vapors of explosives and related hazardous materials shall be avoided. Severe dermatitis, eye and respiratory irritation can result from contact with the smoke from burning propellants. Protective clothing and a self-contained breathing apparatus will be worn when smoke and fumes are unavoidable.

- Mobile radios on–site shall be governed under 20 CFR 1926.900(k)(3), which states that all mobile radios within 1000 feet of explosive operations shall be turned off, and 29 CFR 1926.900 (k)(4) which states that all mobile radios within 100 feet shall be de-energized and locked out.

- Explosive-loaded items of ordnance and explosive-loaded components shall not be subjected to shock or rough handling and shall be protected from extremes of heat, including the direct rays of the sun.

- Explosives or explosive components shall not be carried in pockets or elsewhere on the body, unless they are in special containers designed and approved for transportation in that fashion.

- Extreme caution will be exercised in dealing with old, damaged, and possibly deteriorated explosive-loaded ordnance.

- Color coding of UXO shall not be relied on for positive identification of contents.

- The area forward of the nose of a munition shall be avoided until it can be determined that the item is not a shaped charge, High Explosive Anti-tank (HEAT) UXO. The explosive jet can be fatal to great distances forward of the longitudinal axis of the item.

- Any shaped charge munition must be assumed to contain a piezoelectric (PZ), graze sensitive fusing system until the fusing is otherwise identified.

- Detonation must be anticipated when burning any explosive.

8.13.1 Chemical Surety Material (CSM) Ordnance

A preliminary records search, and information gathered earlier during preliminary investigations to support the UXO Interim Action Record of Decision indicated the possibility of ordnance containing CSM and the possibility of experimental ordnance being present at INEL. No evidence of CSM being present has been found in records of the interim action sites reviewed to date. If documented evidence of CSM UXO is found or if a CSM UXO is identified in the field, UXO personnel shall notify the MK-FIC Remedial Action Engineer (RAE) and the MK-FIC Safety Officer, and shall immediately establish and maintain security of the UXO and the area around the UXO until military authorities arrive and assume custody. No further action regarding CSM ordnance will be taken until the CSM Ordnance has been addressed in an Unreviewed Safety Question Screen against the existing SAR.

8.13.2 Safety Precautions for Fuses

The fuse is the most hazardous component of a UXO, regardless of type or condition. Before moving a UXO, the condition of the fuse shall first be ascertained. Mechanical time fuses shall not be subjected to any unnecessary movement. Adjustable clockwork fuses shall not be reset. A piezoelectric firing crystal shall not be disturbed in any way. Sources of radio frequency or rapidly alternating electric current shall not be activated, i.e., turned on or off in the vicinity of a known or suspected proximity (VT) fuse.

8.13.3 Precautions for Pyrotechnics and Incendiary Munitions

The eyes shall be protected by number 6 shade welders goggles, or equivalent, if visual exposure to burning pyrotechnic material is probable. High-order detonations will be anticipated when burning pyrotechnic or incendiary-loaded ordnance. Burned pyrotechnic or incendiary ordnance will not be approached for 30 minutes after cessation of burning.

Photo-flash powder is extremely sensitive. Photo-flash munitions shall not be directly observed during disposal operations.

Expended pyrotechnic/practice devices may contain red/white phosphorus residue. Due to incomplete combustion, red and white phosphorus may be present and re-ignite spontaneously if subjected to friction, or if the crust is broken.

It should be noted that buried white phosphorus (WP) munitions may be damaged and when exposed to air, may start burning and detonate. WP munitions will not be transported, unless those munitions are immersed in water, mud or wet sand.

Land mines may be in the work areas. Procedures for disposal are provided in the RA Work Plan. An emplaced land mine will be considered armed until proven otherwise.

8.13.4 Render Safe Procedures and Disposal of Unexploded Ordnance

The preferred and safest method for disposing of unexploded ordnance (UXO) is to destroy it in place by detonation. This approach will be used whenever considerations and circumstances permit; however, no UXO shall be destroyed until it has been positively identified.

Each UXO situation is considered unique from a safety point of view. Protective measures to reduce shock, blast, and fragmentation damage shall be taken as the situation dictates. Consideration shall be given according to the situation to tamping the UXO to control fragments, if the situation warrants.

- A bomb fuse well will not be packed with explosives, unless it can be positively confirmed that the fuse well does not contain any fuse components.

- If base-ejection type projectiles are to be transported to a disposal area or to a collection point, the base shall be oriented in the rear of the vehicle and the projectile secured to prevent its release in the event the ejection charge functions en route.

- If UXO with exposed hazardous filler (high explosives, etc.) must be moved to a disposal area, the item shall be placed in a heavy duty plastic bag to prevent migration of the hazardous filler. Padding will also be added to protect the exposed filler from heat, shock, and friction.

8.14 EXCAVATION OF UNEXPLODED ORDNANCE

All excavation on this project will be shallow depth, i.e., no deeper than four feet. Manual excavation methods will be used to excavate buried UXO as described in the RA Work Plan and associated procedures. In the event that the need develops for an equipment-type excavation, the excavation operations shall be performed in accordance with the provisions of 29 CFR 1926 Subpart P.

8.15 COLLECTION/CONTAINERS

Pieces of explosive chunks will be collected by gloved hand methods after the geophysical search. Explosive chunks will be collected and staged in the exclusion zone, the total explosive chunk N.E.W. staged within a particular exclusion zone will not exceed 40 lbs. N.E.W. Staged explosive chunks will be disposed of during the next blasting activity. DOT approved non-metallic containers will be used in removing the contaminated soil from the area of the unexploded ordnance and explosive materials and storing the material until the disposal operations are implemented. Movement and storage of explosive chunks will comply with the Operational Safety Requirements in the approved SAR.

9.0 WORK ZONES, SITE ENTRY, AND SECURITY

Work zones will be established in each area according to the expected levels of contamination in the area and the particulars of the work effort. Entry to all zones shall be controlled. Personnel not required in the operations effort shall be excluded from entry. Visitors shall be restricted to personnel with specific needs at the site. Prospective visitors must notify the MK-FIC RAE and MK-FIC Safety Officer and the Project Superintendent in advance of the visit and obtain the training specified in Section 3.3 of this SSES&H Plan as a prerequisite to entry. Personnel involved in unannounced audits must be identified and provide evidence of required training to the Project Superintendent well in advance of their planned visit. Surveillance personnel must be similarly cleared before access to the job site will be granted.

9.1 DESCRIPTION OF WORK ZONES

Provided in Figure 3 is an example of an approved work site in a non-radioisotope contaminated area, and its established work zones as recommended by NIOSH/OSHA/USCG/EPA, Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, October 1985. (NIOSH, 10/85). Work zones designated by the Project Superintendent (upon the advice of the OHS, and IH) shall be documented in the field log. Work zones required for Levels C, and D work activities are:

- Exclusion Zone (EZ)
- Contamination Reduction Zone (CRZ)
- Support Zone (SZ)

While the Project Superintendent is the primary on-site authority for this project, within the exclusion zone the EOD Leadman is the primary authority. Once an ordnance is identified, the minimum safe distances requirements as implemented by SOP 518-200-18 will be determined. The exclusion zone boundary will be set at this distance.

9.1.1 Exclusion Zone

The Exclusion Zone (EZ) is defined as the total area that is to be remediated. The absolute minimum number of personnel required to safely carry out the work will be allowed into the EZ. The cordon around the EZ is called the "Hot Line."

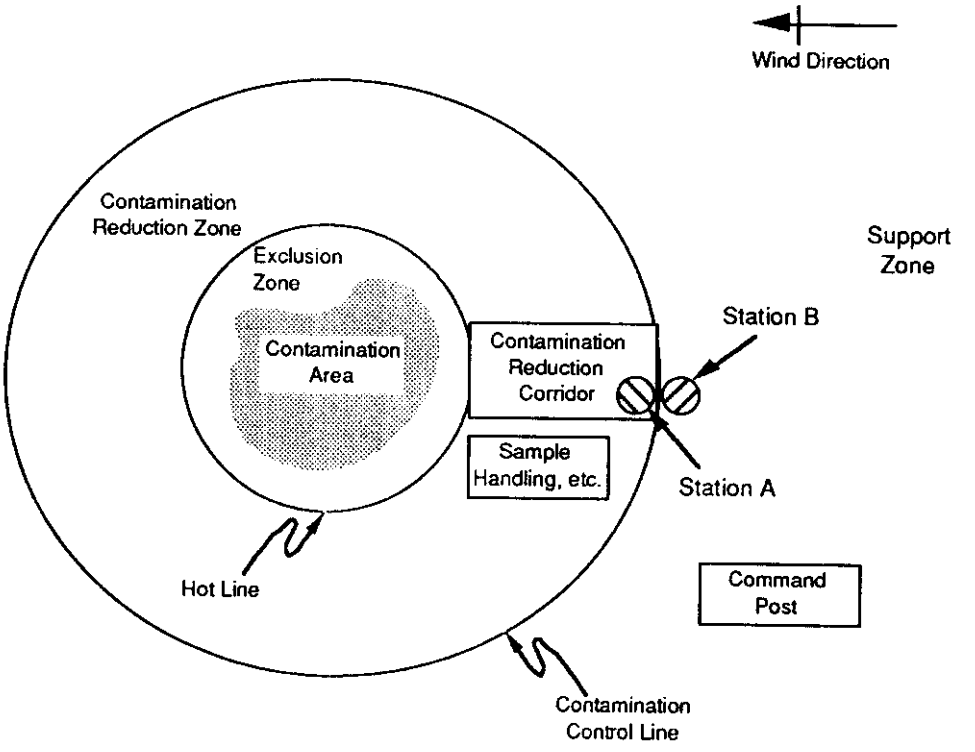


Figure 3. Diagram of a Work Zone

9.1.2 Contamination Area

The contamination area is the immediate area inside the EZ where investigation activities are taking place. As defined on this project it is the total area to be remediated.

9.1.3 Contamination Reduction Corridor

The contamination reduction corridor is a transition area between the restricted work zone and the support zone. This area will serve as a decontamination area for equipment and a PPE removal area for task operations personnel. In addition, this area may contain emergency response equipment, equipment resupply, and a worker temporary rest area. Due to potential for equipment contamination, sample packaging and preparation equipment should not be stored here, but rather, in a contamination free area.

9.1.4 Contamination Reduction Zone (CRZ)

The contamination reduction zone is an area that surrounds the EZ and contamination reduction corridor. This area may contain several work stations (i.e., sampling, handling, and record keeping) as well as staging areas for equipment. The cordon around the contamination reduction zone is called the "contamination control line."

9.1.5 Support Zone

The support area is the zone outside the contamination reduction zone. The equipment trailer, command post, vehicle parking, equipment staging, and other such support will be located in this zone.

10.0 ENVIRONMENT AND PERSONNEL MONITORING

10.1 MEDICAL SURVEILLANCE PROCEDURES

The potential for personnel exposure will be analyzed by the IH before on-site work begins and throughout the working period. If the IH determines that personnel are being exposed to volatile organic hydrocarbon (VOC) containing materials at or above the exposure limits, then medical surveillance for the specific substances to which they were exposed will be initiated on those individuals. The determination of the specific compounds (VOCS, TNT or RDX) involved and the extent of the exposure will be essential to this process.

10.2 EVALUATION OF MONITORING NEEDS

Employee exposure to contaminants and physical hazards will be monitored during all site work using an appropriate combination of techniques. An analysis will be made by the IH and HSO during the on–site mobilization activity to determine the type, level, and frequency of monitoring required at the site. Items that will be considered include:

1. Organic vapor using an organic vapor monitor (to detect unknown organics and low order aromatics)
2. Combustible gas using a combustible gas indicator
3. Heat or cold stress using field measurements and observations and, if necessary, body temperature measurements
4. Personal exposure to organic vapors, particulate contamination (heavy metals) using personal monitoring pumps and appropriate filter collection media (active sampling)
5. Noise levels using a sound level meter and/or noise dosimeter

10.2.1 Chemical Exposure Monitoring

Selective monitoring for organic vapors at the chest or face level may be recommended by the IH for personnel involved in high-risk operations. The determination of need and frequency shall be determined prior to the start of field work from the results of the early surveys and job hazard analyses.

10.2.2 Combustible Gas Monitoring

If deemed necessary by the IH, the areas will be monitored for combustible gases at recommended time intervals. Elevated readings from the organic vapor detector will prompt the Project Superintendent to take action including suspending work, taking corrective action, and ensuring the site is safe before work is allowed to resume.

10.2.3 Temperature Stress Control and Monitoring

The Project Superintendent will set work/rest schedules as recommended by the HSO. The HSO will suggest adjustments of the work/rest cycle according to the ambient weather conditions or work conditions and physical response of task operations personnel. The Project Superintendent and HSO will ensure that operations personnel follow established work and break schedules, adequately replace body fluids, and keep body temperatures in a normal range following the guidelines in the ACGIH BEIs.

Workers will be interviewed by the HSO periodically to ensure that the controls are effective and excessive heat exposure is not occurring. Workers will be encouraged to monitor themselves and take a break if symptoms of heat stress occur.

Personnel shall be alert to the following signs and symptoms of heat stress:

- Confusion*
- Fainting*
- Slurred speech*
- Clammy skin
- Dizziness
- Fatigue
- Nausea
- Profuse sweating
- Skin color change
- Vision problems

Personnel who exhibit any of these symptoms will be immediately removed from the work area and treated. An individual who shows any of the symptoms marked with an asterisk, or

shows other evidence of change in level of consciousness, will be transported to a medical facility for medical evaluation.

Mental confusion and decreased level of consciousness shall be considered an emergency requiring medical evaluation and treatment. Use of an ambulance is considered normal procedure in this situation.

Individuals showing any of the other symptoms above will be provided cool water and removed from the stressful condition and required to rest. When the worker experiencing the heat stress symptoms believes the heat stress is severe or desires medical evaluation, or if the Project Superintendent feels medical evaluation is necessary, the employee will be taken to a medical facility.

Rest breaks shall include the following preventive measures:

- Drink adequate liquids
- Remove protective clothing to allow evaporative cooling
- Do not perform other work during the break

If personnel are wearing semipermeable or impermeable PPE, the work/rest schedule may be adjusted and monitoring of individual body temperatures may be required by the IH. If ambient temperatures are considered excessive by the IH and/or heat stress symptoms are exhibited, workers must be monitored for heat stress and recovery. Monitoring includes measuring heart rates and temperatures. Temperatures can be obtained using disposable thermometers. The HSO will ensure that sufficient liquids (electrolyte replacement fluids such as Gatorade) are provided and that they are consumed only in the designated and approved eating/drinking area.

Protective clothing shall be worn as specified by the HSO to protect against the cold per ACGIH recommendations. Extra care must be exercised while working in this environment. Workers should observe each others' facial extremities (ears and nose) for signs of frostbite (whitening of the skin surface). Decreased mental coherence and body movements are signs of hypothermia. Individuals with suspected hypothermia or other significant cold injury (e.g., frostbite) will be taken to a medical facility.

The Project Superintendent or HSO will refer a worker for medical evaluation whenever there is doubt concerning the medical ability of an employee to continue in the assigned task.

10.3 NOISE LEVEL

If high noise levels are encountered by operations personnel at the task site, worker exposure will be assessed by the HSO. A hearing conservation program will be developed and implemented by the IH when sound levels exceed an 8-hour time weighted average of 85 dBA or for those exposed to explosive impulses exceeding 140 dBA. Noise level monitoring, PPE requirements, and audiometric tests shall be outlined in the hearing conservation program for the task or employee. Requirements shall be imposed by the Project Superintendent based on the advice of the IH and the requirements stated in DOE Order 5480.10, DOE-ID 0550, 29 CFR 1910.95, and the ACGIH TLVs and the BEI.

10.4 PHYSICAL HAZARD CONTROL AND MONITORING

The Project Superintendent will be responsible for ensuring the site is maintained in a safe condition. He shall require maintenance of barriers and signs, correction of unsafe conditions, and cleaning of debris and trash. The HSO will inspect and recommend appropriate changes in work habits to the Project Superintendent.

Individuals working on a task will be schooled in their responsibilities to use safe work techniques, report unsafe working conditions, and exercise good personal hygiene and housekeeping habits throughout the course of their job.

10.5 RECORD KEEPING REQUIREMENTS

Copies of this SSES&H, the Program Management Plan and Work Plan and other such planning documents will be maintained in the Wyle Project Office.

Wyle will also maintain the following information for each hazardous material worker serving on the program:

- Proof of training having been provided
- Scheduling of required training and updates
- Copy of the signed Health and Safety Certification Form
- Records of accidents and injuries

The HSO will maintain a bound logbook of personal sampling data, times of sampling intervals, calibration of SSES&H monitoring instruments, and identity of personnel wearing the monitoring equipment. Instrumentation detection ranges and uncertainties will also be recorded in the logbook. Project records and logbooks shall be maintained by HSO, and shall be forwarded to MK–FIC ERP on request for review. Records storage will be monitored at the direction of the Project Manager, in conformance with the RA Work Plan and Wyle procedures SPP 380-17-H.

10.6 INSTRUMENT CALIBRATION

The survey equipment will be calibrated by the manufacturer annually and certified by the Wyle Calibration Laboratory according to manufacturer's specifications. The instrument will also be functionally field-calibrated daily prior to use, and additionally as required to reflect temperature changes. The functional calibration procedure provided by the manufacturer will be used. User calibration data shall be maintained on an instrument calibration log. Copies of user calibration logs will be forwarded with field reports to MK-FIC on a routine basis.

11.0 DECONTAMINATION PLANS AND PROCEDURES

11.1 PERSONNEL DECONTAMINATION PROCEDURES

Chemical contamination of personnel by UXO and UXO soil residuals is not expected; however, provisions are included for responding to such circumstances. If the skin comes into contact with the solid chemicals or contaminated soil, contaminated clothing and shoes will be removed. The affected area will be washed with soap or mild detergent and water until no evidence of solid remains. Water used in this washing will be collected and used as other decon water. Medical attention will be immediately sought.

In case of eye contact, the eyes must be immediately washed with large amounts of water from the portable eye wash, occasionally lifting upper and lower lids for 20 minutes. Before the start of the field work the capability of the portable eye wash to maintain a constant flow for 20 minutes will be demonstrated by the HSO.

11.2 LEVEL D DECONTAMINATION PROCEDURES

A decontamination station will be located at the personnel access to the contamination reduction corridor, to be used as personnel exit from the EZ in Level D PPE.

11.3 DECONTAMINATION MODIFICATION

Field changes will be incorporated using a construction interface document (CID). Such changes will be noted in the Field and Project Logbook.

11.4 DISPOSAL PROCEDURES

Waste generated from normal operations such as gloves, PPE, and wipes used on-site will be bagged and disposed of as appropriate. Disposal will be in accordance with the requirements listed in the Wyle Operating Guidelines (WOG) 200.1.

11.5 EQUIPMENT DECONTAMINATION AND DISPOSAL OF CONTAMINATED MATERIALS

Equipment will be decontaminated in accordance with WOG-200-1 provided with the RA Work Plan. Disposable clothing and other contaminated disposable equipment, shall be secured and disposed of also in accordance with WOG-200-1.

11.6 REMEDIATION WASTE

All wastes generated during the task site investigation shall be managed in accordance with the following requirements:

- Solid Non-Hazardous Materials
  - — Certify clean and landfill
  - — Survey routine, nonhazardous waste and dispose of in the INEL Sanitary Landfill (Reference DOE/ID 10334, Rev 0)
- Liquid Non-Hazardous Wastes
  - — Dispose of liquid non-radioactive wastes on–site according to 40 CFR 261 and DOE Orders 5400.1 and 5400.5
- Hazardous Wastes
  - — Shall be disposed in accordance with RCRA Subtitle C, 40 CFR 260-266, 40 CFR 268, 49 CFR 171-173, 49 CFR 178, DOE-ID and DOT, and current DOE-ID potentially radioactive materials shipping moratorium.
  - — Classify, select packaging, mark, label, load and ship per the following orders and guidelines:
    - — EPA Form 8700-22 - be certified as Hazardous Materials Shipper
    - — ID 5480.1A, US DOE Off–site Radioactive Shipment Record

- DOE and DOE-ID Orders 1540.1 "Materials Transportation and Traffic Management"
- DOE Order 1540.2, "Hazardous Material Packaging for Transport - Administrative Procedures"
- DOE Order 5400.1, "General Environmental Protection Program"
- DOE Order 5400.3, "Hazardous and Radioactive Mixed Waste Program"
- DOE Order 5400.4, "DOE Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Requirements"
- DOE Order 5480.3, "Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances and Hazardous Wastes"
- DOE and DOE-ID Orders 5480.4, "Environmental Protection, Safety and Health Protection Standards"
- 40 CFR, Part 260, "Hazardous Waste Management Systems: General"
- 40 CFR, Part 261, "Identification and Listing of Hazardous Waste"
- 40 CFR, Part 262, "Standards Applicable to Generators of Hazardous Wastes"
- 40 CFR, Part 264, "Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities"
- 40 CFR, Part 268, "Land Disposal Restrictions"
- 49 CFR 171, "Hazardous Materials Regulations"
- 49 CFR172, "Hazardous Materials Tables and Hazardous Waste Permit Programs"
- 49 CFR 173, "Shippers - General Requirements for Shipments and Packaging"
- 49 CFR 178, "Shipping Container Specifications"
- "Hazardous Waste Storage Facility Waste Acceptance Criteria", DOE/ID-10179, January 1992, Rev.2
- "Hazardous Waste Storage Facility Safety Analysis/OSR", December 1986
- DOE-ID potentially radioactive waste shipping moratorium
- 49 CFR 383, "Driver Requirements"
- 49 CFR 177, "Carriage By Public Highway"

- 49 CFR 387, "Financial Responsibility for Motor Carriers"
- 49 CFR 390, "Federal Motor Carrier Safety Rigs"
- 49 CFR 391, "Qualifications of Drivers"
- 49 CFR 392, "Driving of Motor Vehicles"
- 49 CFR 393, "Parts and Accessories for Safe Operation"

Items banned from disposal at the landfill include the items listed in DOE/ID-10334, Rev. 10.

11.7 DECONTAMINATION DURING MEDICAL EMERGENCIES

If a person is injured or becomes ill and lifesaving care is required, emergency care will be initiated immediately by first aid trained personnel. Emergency care will be initiated in accordance with the injured person's needs. In the event of a life threatening injury, decon procedures will not be initiated. The Project Superintendent or the HSO shall notify the nearest emergency facility that an injured person is being transported, and advise of potential contamination. Maps of the areas are included in Section 3.12.2. These maps will be included in the field notebook to show the fastest route to the medical facility. The HSO will accompany the employee to the medical facility and relay information requested by medical personnel.

12.0 EMERGENCY PROCEDURES, EQUIPMENT, AND INFORMATION

Presented in the subsections that follow is a description of the following: planned responses; procedures to be followed during emergency situations; equipment that will be available on-site for emergency situations; and the agencies, facilities, and off-site personnel who will be notified in case of emergency. Locations and telephone numbers of emergency personnel, facilities, and off-site personnel will be provided to MK-FIC and DOE as directed by MK-FIC. Each emergency facility shall be notified by phone at the beginning of the project to inform them that work has begun at the task site. Emergency contacts are listed in Section 3.12.1.4 below.

12.1 PROCEDURES TO BE USED BY ON-SITE PERSONNEL

The following procedures will be used by on-site personnel:

- The Project Superintendent or his designee will be notified of any on-site emergencies and will be responsible for ensuring that the appropriate procedures in the Emergency Plan are followed.
- The Project Superintendent is responsible for notifying the MK-FIC ERP RAE and of any accident, injury or regulatory violation to enable the Remedial Action Engineer (RAE) to prepare and submit Occurrence Reports to DOE-ID.
- All injuries, regardless of how minor, will be reported and recorded in a bound field logbook.
- All injuries or illnesses deemed reportable by the HSO, vehicle accidents resulting in damage or losses, and property damage will be reported.

12.1.1 Personnel Injury in the Exclusion Zone

Upon notification of an injury in the EZ, a continuous blast on a vehicle horn or self-contained air horn will be sounded. All equipment within the zone not needed in the emergency response will be shut down. Personnel in the EZ area will transport the injured person to the support zone where appropriate first aid will be administered. (NOTE: If the first aid personnel deem it necessary, the injured person will be immobilized before any move takes place.)

All other personnel will assemble in the support zone until directed to resume work by the Project Superintendent. The HSO and the Project Superintendent will evaluate the nature of the injury. No persons will reenter the Exclusion Zone until the cause of the injury or symptoms is determined and the EZ is again considered to be a normal working environment.

12.1.2 Personnel Injury in the Support Zone

Upon notification of an injury in the Support Zone, the Project Superintendent, HSO, and first aid personnel will assess the nature of the injury. If the Project Superintendent and HSO determine that the cause of the injury or the absence of the injured person from the field team will not create a safety problem for other personnel, operations will be allowed to continue. Appropriate first aid will be administered and necessary follow-up provided as discussed below. If the injury increases the risk to other workers, the emergency signal will be sounded, non-essential equipment will be shut down, and all task site personnel will move to the designated safe area and await further instructions. Activities in the area will not start up again until the risk is eliminated or reduced to a satisfactory level.

12.1.3 Transportation of and Follow-up of Injury

If an injured worker is transported to the medical facility, he will be accompanied by at least one other worker (preferably the HSO or IH) to inform medical personnel of the level of treatment performed prior to leaving the site and to provide specific details as to the nature of the injury. The medical facility will be notified that the patient is in-transit.

12.1.4 Emergency Reference List

• Ambulance	777
• Medical	526-2356
• Fire	777
• Warning Communications Center (WCC)	526-1515 or radio KID 240
• Security	777
• MK-FIC Remedial Action Engineer R. Medellin	526-4072

•	Emergency Action Manager	526-3755
•	Occupational Medical Program	523-9552
•	MK-FIC Safety Officer	526-8197
	Hance Clayton	
•	Project Health and Safety Officer	
	G. Zimmerman	TBD
•	MK-FIC Industrial Hygiene	
	T.R. Collings	526-8581
•	Radiological control (through MK-FIC)	
	EG&G	TBD
•	Area Landlord (CFA)	526-2150
	Wilbert Wylan	
•	Project Superintendent	
	J. Santa Cruz	TBD
•	Area Landlord (Argonne)	TBD

Note: This emergency reference list will be updated as needed, copied, and taped or pasted into the field sampling logbook.

12.2 EMERGENCY ROUTES

In the event of a medical emergency, the Project Superintendent will initiate and direct the response according to the particular emergency circumstance. Area personnel will be signaled to assemble at the staging area, near the transportation vehicles. Drawings showing the locations of the staging area and the vehicle parking area at the particular site will be posted at the site. The drawing will also be included in the field sampling logbook. Area-specific emergency instructions including evacuation routes will be provided to the work crew by the EOD Team Leader at the morning "tailgate" meeting.

Medical emergencies will be handled by the dispensary at CF 603. The dispensary will be notified by telephone. If deemed necessary, the patient may be transferred to CF 603 by medical personnel. The relative location of the CFA dispensary (CF 603) and the fastest routes of travel to the dispensary are shown on the UXO area-specific drawing, Figure 4.

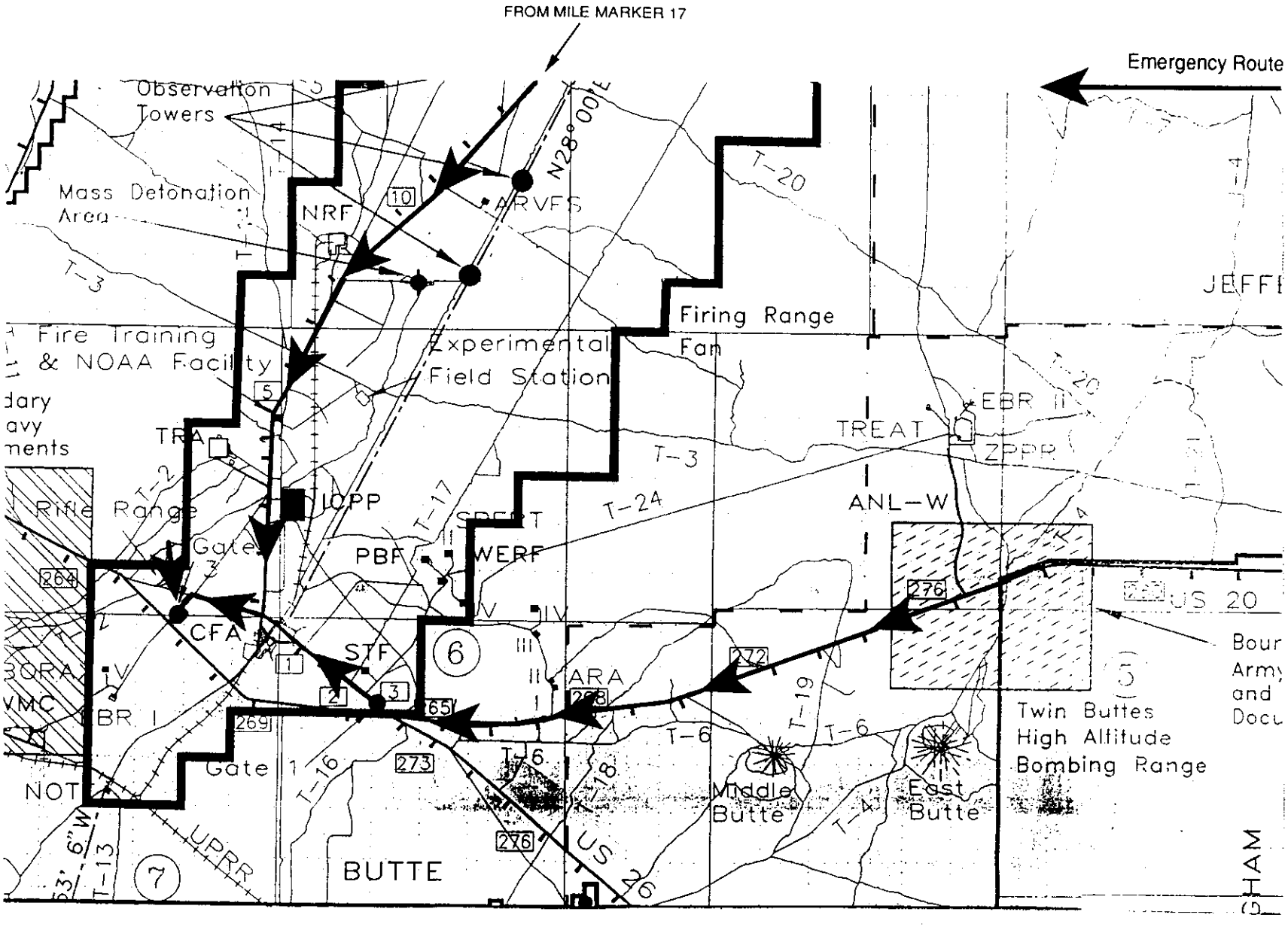


Figure 4. Emergency Route to CFA

12.3 EMERGENCY PROCEDURES

12.3.1 Additional and/or Modified Emergency Procedures

Hand-held F-net radios will be available at the work site at all times. A transportation vehicle will be positioned in proximity to the evacuation route. The buddy system will be reviewed and followed.

Hand signals will be used if an emergency situation arises and normal communication becomes impossible or unsafe. The following hand signals will be used in an emergency:

- Hand gripping throat - signals that the person is out of air or can't breathe
- Grip partner's waist or both hands around waist - means leave area immediately
- Hands on top of head - signals that assistance is needed
- Thumbs up - okay, I'm all right, I understand
- Thumbs down - no, negative.

12.3.2 Requirements for Task Site Evacuation

Operations may be suspended for several reasons such as those indicated below. The reasons for operations shutdown are directly related to the degree of hazard found in each task. Examples include excessive vapor/gas concentrations, radiological hazards, unsuspected waste, inclement weather, etc.

- Work shall stop if radiological contamination is identified at the work area.

- Work shall stop when electrical storms approach within five miles.

- In addition, drilling, sampling, instrumentation, and other weather sensitive activities will stop during consistent high winds (i.e., >25 mph), or other inclement weather.

- In the event of a range fire, EOD personnel shall immediately evacuate the area and notify the EG&G Idaho Fire Department. EOD personnel shall not attempt to fight range fires.

- EG&G Idaho Fire Department has been directed that before fighting a range fire in any of the remediation areas or the detonation range, they shall consult with Wyle EOD personnel to determine if UXO is present or suspected to be present. The Fire Department shall not fight the fire if UXO is or may be present. Wyle shall be available to consult as needed by the fire department.

If evacuation from the site is required, the evacuation route should be upwind if possible, but perpendicular to the wind direction if it is toward the contamination source. The Project Superintendent and HSO will evaluate conditions daily and modify the routes as appropriate. Evacuation route changes will be communicated to the site personnel at the morning tailgate meeting.

12.3.3 Task Site Warning Devices

The following devices will be used to signal emergency conditions:

- Mobile radios
- Air horn to communicate emergency situations to personnel on–site (clearance with facility landlord on signals will be obtained before hand)

Project operations personnel will be instructed in the responses to be taken to the signals.

12.3.4 Task Site Emergency Responsibilities

Name	Responsibility	Action
Jay Santa Cruz	Project Superintendent	Initiate and direct emergency response
G. Zimmerman	HSO (ES&H)	Recommend protective measures
Rich Medellin	RAE	Advise
Hance Clayton	HSO (ES&H)	Coordinate with Wyle HSO and project superintendent and advise

12.3.5 Accident/Incident Investigation and Reporting

All accidents or incidents will be investigated and an accident report completed. The MK-FIC RAE will be notified by telephone as soon as first aid and/or emergency response needs

have been met. A written report will be prepared by the Project Superintendent and provided to the Project Manager within 24 hours.

For reporting purposes, the term accident refers to fatalities, lost time injuries, spill or exposure to hazardous materials (radioactive materials, toxic materials, explosive or flammable materials), fire, explosion, or property damage.

12.3.6 Procedures for Inclement Weather

In the event of inclement weather (rain, snow, winds exceeding 25 mph, or electrical storms within five miles), which in the opinion of the Project Superintendent poses a risk to the safety of the crew, operations will be halted until the weather clears.

12.3.7 Reentry Procedures

When an emergency dictates the evacuation of the site, permission to re-enter will be determined by the Project Superintendent in coordination with on-site emergency functions, the MK-FIC RAE, and the Project HSO.

12.3.8 Personal Protective Equipment Failure

If any worker experiences a failure or alteration of PPE, that person and his workmate shall immediately leave the exclusion zone. The HSO will assess the situation and determine if exposure to hazardous substance has occurred. Reentry will not be permitted until the equipment has been repaired or replaced and the cause of the failure corrected.

12.3.9 Other Equipment Failure or Hazardous Material Spill

If site equipment fails to operate properly, the Project Superintendent will be notified and the effect of the failure on continuing operations determined. If the failure affects the safety of personnel or prevents completion of the tasks described in the work plans, operations personnel shall evacuate the area until the situation is evaluated and appropriate actions are taken. If a hazardous material spill has occurred, MK-FIC ERP will be notified and work shall cease until spill remediation activities are completed and MK-FIC ERP authorizes resumption of work.

12.4 EMERGENCY EQUIPMENT

The following emergency equipment shall be located at the work site during field operations.

Fire Extinguisher - No.: 9

Location(s): Command Post A (1)
Command Post B (1)
Blast Area (1)
Explosives/UXO Transport Vehicle (2)
Magazine (2)
Field Office (2)

Maintenance Schedule: Monthly, and upon use

First Aid Supplies - No.: 4

Location(s): Command Post A (1)
Command Post B (1)
Blast Area (1)
Field Office (1)

Maintenance Schedule: Monthly, and upon use

Portable Eyewashes - No.: 3

Location(s): Command Post A (1)
Command Post B (1)
Blast Area (1)

Maintenance Schedule: Monthly, and upon use

12.4.1 Fire Extinguishers

Because of the potential threat of fire at hazardous waste sites, at least one 20-pound (minimum) ABC fire extinguisher will be readily available and at hand throughout the work effort in each work area.

12.4.2 First Aid Kits

An industrial first aid kit with supplies for five people shall be kept in the support zone at each location. All individuals of the on–site project team shall be trained and certified in first aid and CPR. The OMP physician will advise on the selection of first aid supplies to be included at each task site. The HSO will be responsible for maintaining the proper level of first aid supplies in the task site first aid kit.

12.4.3 Eye Wash

Portable eyewash fountains and a supply of potable water sufficient to flush for at least twenty minutes will be readily available for the duration of the task at each location. The location of the eyewash within the support zone will be specified by the IH, and will be included in the Daily Safety Briefings.

12.4.4 Personal Hygiene

A sufficient supply of clean water, hand soap, and towels will be provided at the task site.

BIBLIOGRAPHY AND REFERENCES

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Appendix D
Operations & Maintenance

Appendix D
OPERATIONS AND MAINTENANCE PLAN

Table of Contents

Listing of Tables and Figures

ACRONYMS

%RSD	Relative Standard Deviation
ACGIH	American Conference for Government Industrial Hygienists
ADQ	Audits of the Data Quality
AE	Architectural Engineering
AEC	Atomic Energy Commission
ALARA	As Low As Reasonably Achievable
ANSI	American National Standards Institute
ARAR	Applicable or Relevant and Appropriate Requirements
ASM/AL	Area Shift Manager/Area Landlord
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATL	Audit Team Leader
BDAT	Best Demonstrated Available Technology
BEI	Biological Exposure Indices
BLM	Bureau of Land Management
BNA	Base/Neutral Analysis
CAR	Corrective Action Report
CDL	Commercial Driver's License
CEHND-ED-SY	Corps of Engineers, Huntsville Division—Explosives Division Safety
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CID	Construction Interface Document
CLP	Contract Laboratory Program
CoC	Chain-of-Custody
COCA	Compliance Order and Consent Agreement
CoE	Corp of Engineers
CONWEP	Army Technical Manual (TM) 5-855-1, Fundamentals of Protective Design for Conventional Weapons
COTR	Contracting Officer Technical Representative
CPR	Cardio Pulmonary Resuscitation
CR	Code of Regulations
CRREL	Cold Regions Research and Engineering Laboratory
CRZ	Contamination Reduction Zone
CSM	Chemical Surety Material
CSWP	Construction Safe Work Permit
DART	DartAmerica
dBA	Decibels Absolute
DCO	Document Control Officer
DMS	Data Management System
DNB	Dinitrobenzene
DNT	Dinitrotoluene
DOD	Department of Defense
DOE	Department of Energy
DOE–ID	Department of Energy Idaho Field Office
DOT	Department of Transportation
DRR	Document Revision Request
EBR	Experimental Breeder Reactor
ECC	Emergency Control Center
EE/CA	Engineering Evaluation/Cost Analysis
EEDs	Electro Explosive Devices
EG&G	Edgerton Germishausen and Grier
EM	Engineer Manual
EMM	Earth Moving Machinery

EMR	Electromagnetic Radiation
EOD	Explosive Ordnance Disposal
EODP	Explosive Ordnance Disposal Publication
EPA	Environmental Protection Agency
ERP	Environmental Restoration Program
ES&H	Environmental Safety and Health
EZ	Exclusion Zone
FFA/CO	Federal Facility Agreement and Consent Order
FCC	Federal Communication Commission
FID	Flame Ionization Detector
FM	Field Manual; Factory Mutual
FM	Frequency Modulation
FR	Federal Register
g	grams
GFCI	Ground Fault Circuit Interruptor
GPR	Ground Penetrating Radar
HAZCOM	Hazards Communication
HAZMAT	Hazardous Material
HEAT	High Explosive Anti-tank
HERO	Hazards of Electromagnetic Radiation to Ordnance
HF	High Frequency
HMX	Cyclotetramethylenetetranitramine
HPLC	High Performance Liquid Chromatography
HSO	Health and Safety Officer
HVAC	Heating Ventilation and Air Conditioning
HWE	Hazardous Waste Engineer
IA	Interim Action
IAW	In Accordance With
ICPP	Idaho Chemical Processing Plant
ID	Identification
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDHW	Idaho Department of Health and Welfare
IDLH	Immediately Dangerous to Life and Health
IH	Industrial Hygienist
INEL	Idaho National Engineering Laboratory
IOCP	Interim Ordnance Cleanup Program
JSS	Job Site Supervisor
L&Q	Limitations and Qualifications
LDR	Land Disposal Restriction
LEL	Lower Explosive Limit
MDL	Method Detection Limit
MK-FIC	Morrison Knudson-Ferguson of Idaho Company
ml	milliliter
mph	Miles Per Hour
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MSDS	Material Safety Data Sheet
NA	Number Not Recognized For International Transportation
NAAQS	National Ambient Air Quality Standards
NAVSEA OP	Naval Sea Systems Command
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NCR	Non–conforming Report
NEC	National Electrical Code
NESC	National Electrical Safety Code
NEW	Net Explosive Weight
NFPA	National Fire Protection Association
NIOSH	National Institute of Occupational Safety and Health

NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NODs	Notices of Deviation
NODA	Naval Ordnance Disposal Area
NOP	Naval Ordnance Plant
NPL	National Priority List
NPG – Arco	Naval Proving Ground
NRF	Naval Reactor Facility
O&M	Operations and Maintenance
OC	Operating Characteristic
OEL	Occupational Exposure Limit
OEW	Ordnance Explosive Waste
OMP	Occupational Medical Program
OSHA	Occupational Safety and Health Act
OU	Operable Unit
OVA	Organic Vapor Analyzer
PC	Personal Computer
PCB	Polychlorinated Biphenyl
PEL	Permissible Exposure Limit
PETN	Pentaerythrite Tetranitrate
PFIR	Prefinal Inspection Report
PID	Photoionization Detector
PjM	Project Manager
PPE	Personal Protective Equipment
PPM	Parts Per Million
PPRD	Preliminary Prefinal Remedial Design
PSD	Prevention of Significant Deterioration
PTI	Protection Technology Idaho, Inc.
PZ	Piezoelectric
QA	Quality Assurance
QAMS	Quality Assurance Management System
QAO	Quality Assurance Officer
QAP	Quality Assurance Program
QAPjP	Quality Assurance Project Plan
QAPP	Quality Assurance Program Plan
QC	Quality Control
QE	Quality Engineer
RA	Remedial Design
RAA	Remedial Action Area
RAC	Risk Assessment Code
RAE	Remedial Action Engineer
RAR	Remedial Action Report
RAS	Routine Analysis Services
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RF	Radio Frequency
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
ROPS	Rollover Protective Structures
RPD	Relative Percent Difference
RPM	Regional Project Manager
RQ	Reportable Quantities
RSD	Relative Standard Deviation
RSR	Records Search Report
RWMC	Radioactive Waste Management Complex

S&H	Safety and Health
SAL	Specified Assurance Level
SAP	Sampling and Analysis Plan
SAP/QAPjP	Sampling and Analysis Plan/Quality Assurance Project Plan
SAR	Safety Analysis Report
SARA	Superfund Amendments and Reauthorization Act
SARM	Standard Analytical Reference Materials
SAS	Special Analysis Services
SCBA	Self Contained Breathing Apparatus
SDWA	Safe Drinking Water Act
SE	Safety Engineer
SMO	Sample Management Office
SOG	Standard Operating Guidelines
SOP	Standard Operating Procedure
SRM	Special Resource Management
SSES&H	Site Specific Environmental Safety and Health
SSO	Site Safety Officer
SWP	Safe Work Permit
SZ	Support Zone
TAN	Test Area North
TAP	Toxic Air Pollutants
TBBR	Twin Buttes Bombing Range
TCLP	Toxicity Characteristics Leachate Procedure
TDU	Temporary Decontamination Unit
TEL	Threshold Exposure Limit
TEU	Technical Escort Unit
TLV	Threshold Limit Value
TM	Technical Manual
TNB	Trinitrobenzene
TNT	2,4,6-trinitrotoluene
TO	Technical Order
TRA	Test Reactor Area
TSCA	Toxic Substances Control Act
TSD	Temporary Storage and Disposal
UL	Underwriters Laboratories
UN	Identification Number for International Transportation
USATHAMA	United States Army Toxic Hazardous and Munitions Agency
USCG	United States Coast Guard
USGS	United States Geological Service
UXO	Unexploded Ordnance
V/V	Verification and Validation
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compound
VT	Variable Time
WAC	Waste Acceptance Criteria
WAG	Waste Area Group
WCC	Warning Communications Center
WOG	Wyle Operating Guidelines
WP	White Phosphorous
WWIII	Waste Wrangler III

OPERATIONS AND MAINTENANCE PLAN

This appendix defines the plan for the installation, operation, and maintenance of the temporary facilities required to support the removal action project. Construction of the temporary facilities meet the applicable standards and requirements of the DOE–ID Architectural Engineering Standards, Appendix K; DOE 6430.1A General Design Criteria; OSHA Regulation 29 CFR 1910; DOE Explosives Safety Manual; 27 CFR Subpart K Section 55.208; and DOD 6055.9STD Ammunition and Explosives Safety Standards.

The planned use of the facilities is "for low value occupancy" purposes as defined in DOE–ID Architectural Engineering Standards, Appendix K. An improved risk criteria analysis was performed for this remedial action. A determination was made that the facilities described in this section do not meet the improved risk criteria of Appendix K.

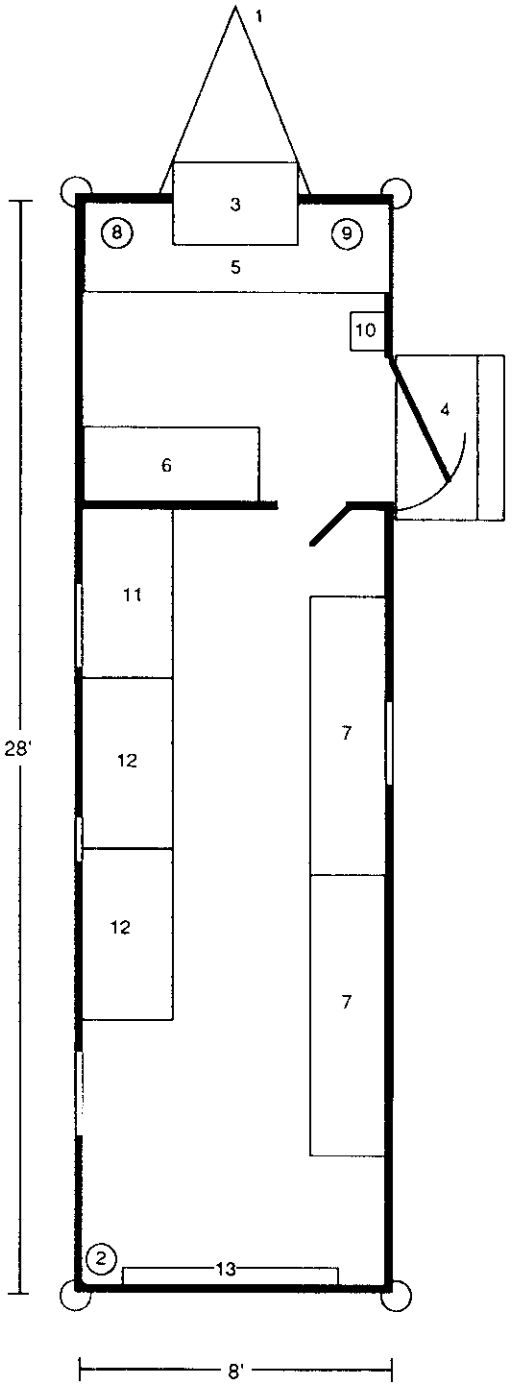
1.1 PROJECT OFFICE TRAILER

A mobile office trailer will be installed on the INEL site to serve as the removal action project office. It will serve as the center of the administrative activities and as the communication center. It will be equipped to satisfy first aid functional needs and equipment storage needs as well.

1.1.1 Description

The trailer will be rented from G.E. Modular Storage of Boise, Idaho. Installation and tie down hardware will be furnished by G.E. Modular Storage. The unit is 8 foot x 28 foot with a 4 foot tongue that makes the entire length of the trailer 32 feet. It is insulated and is wired for electric lighting. The trailer is divided into two rooms as shown in the layout in Figure 1. G.E. Modular Storage is a supplier of mobile facilities to the INEL.

The trailer has been inspected and is certified to meet the State of Idaho requirements for mobile office and trailer facilities. Electrical wiring is in accordance with National Electrical Code (NEC NFPA 70). The hot and neutral, hot and ground, and neutral and ground conductors will be checked before occupying the trailers.



Equipment List

1. Ball Hitch
2. Fire Extinguisher
3. HVAC
4. Platform & Step
5. Desk
6. Drawing Desk
7. Table
8. Telephone
9. Base Radio
10. First Aid Kit
11. Cabinet
12. Shelves
13. Roll Up Bay Door

Figure 1. Layout of the Project Office Trailer

It is a "low hazards occupancy" office trailer in accordance with NFPA 101 and as defined in Paragraph 2.10 of the Architectural Engineering Standard. It is constructed and will be installed in accordance with the requirements of Section 2 of the DOE–ID Architectural Engineering Standard.

The trailer will be equipped with a heating, ventilation, and air conditioning (HVAC) system, telephone, a base radio unit, administrative equipment and a fireproof cabinet for record storage. The unit will be anchored to the ground using screw-down type anchors and anchor straps for stability during periods of high wind. The unit is designed with two exits. Two fire extinguishers will be mounted inside the trailer in accordance with NFPA 10. The unit is not equipped with an automatic sprinkler system. The unit does not have sanitary facilities, nor is it constructed with plumbing for water or sanitary facilities; however, a portable sanitary facility will be provided by Roto Rooter of Idaho Falls. Roto Rooter supplies portable sanitary facilities to the INEL. It will be located on Trailer Pad 38 and will support the field office trailer. The sanitary facility will be serviced by Roto Rooter on a weekly basis.

1.1.2 Location

The trailer will be located on Trailer Pad 38 near ICPP–698, the MK–FIC construction management offices, outside the east ICPP perimeter fence on the extreme east–central side of ICPP. In conformance with requirements of Appendix K "Standard for Trailers, Portable Structures, and Modular Buildings." The project office trailer will be located in proximity to a fire hydrant. To avoid entrainment of windblown material through the doors, the trailer will be oriented with the access door on the north or east, if possible.

1.1.3 Normal Operations

The trailer is the center of all administrative efforts on the project. It will serve as the field office for the Project Superintendent and for the clerical support. Files, documents, records, logs and the field library will be maintained in the trailer. It will be equipped with a computer, communication equipment, file cabinets and general office support equipment and furniture. It will also be used as the check–in point for all visitors.

A secure key box for storing the magazine keys and magazine logs will be kept inside. The trailer will also be used as the communication center for the removal action. All radio transmissions will be monitored at this site. It will serve as the emergency control center should the need arise.

1.1.4 Potential Operating Problems

Potential operating problems are minimal but they do include loss of records and equipment due to fire or theft, problems with heating and air conditioning, and office and communication equipment shut down due to loss of power.

1.1.5 Contingency Procedures

Replacement of lost or stolen equipment is easily achieved as these items are off–the–shelf type items which can be quickly replaced. Duplicate copies of all records and documents will be maintained at the Norco, California Office and will be readily available. In the event of an electrical power failure, all field operations will be halted by means of radio communications or by dispatching a vehicle to the work area. Operations will cease until electrical power has been restored in the field office.

1.1.6 O&M Budget

The budget for the office trailer and associated equipment and support services over the duration of the project is approximately $9,000.

1.1.7 Tie–in to Utilities

The office trailer will operate on 110 volt electrical service. Internal outlets will be GFI protected. It is planned to hard wire the unit into an existing INEL electrical power source.

1.2 EXPLOSIVE STORAGE BUNKER

Explosives, blasting caps, and demolition materials required on the project will be stored at the Protection Technology Idaho (PTI) ordnance storage area in the magazine designated for the particular hazard class and compatibility groups on this project. At least two 2A 10BC fire extinguishers will be positioned by each magazine.

1.2.1 Location

Bunkers 10 and 11 in the PTI ordnance storage area will be used for the storage of Wyle ordnance. Bunker 10 will store blasting caps, while Bunker 11 will store the explosives. Magazines are not located at less than the quantity distance requirement of 1250 feet to inhabited buildings, and 750 feet to public highways, per DOD 6055.9–STD, "Ammunition and Explosives Safety Standards". Siting for the day boxes is not required as these boxes are transported in the blasting vehicle and are not intended for explosive storage.

1.2.2 Storage Operations

Storage operations are in accordance with DOD 6055.9 STD and the DOE Explosive Safety Manual. Immediately on receipt explosives will be inspected. Each item in the delivery set will be examined for damage or defect. If discrepancies are found the Project Superintendent and the Project Safety Officer will be notified immediately. All transactions involving explosives, e.g., inspections, withdrawals from inventory, additions to inventories, etc., will be accomplished by two individuals.

Explosives will not be stored together with dissimilar materials or items which present a hazard to the explosives. Different types of explosives may be stored together provided they meet the compatibility requirements of DOD 6055.9 STD.

The maximum amount of explosives which will be stored in the magazine is 500 pounds of Class 1, Division 1 explosives based on quantity distance relationships. The amount of material stored shall not exceed the quantity distance criteria or magazine capacity. Magazines will be placarded in accordance with NAVSEA OP5 Vol 1. The hazards associated with the contents of the magazine will be posted on the inside of the magazine door.

Explosives will be stored in stacks by type and lot number. Stacks will be arranged so that containers are accessible for use and offer an unobstructed circulation of air. A minimum of six inches of air space will be maintained between stacks and the magazine walls. The bottom layer of the stack will be raised off the floor. Explosives will be stored in secured containers. Containers that have been opened will be closed and securely fastened while in storage. Partly filled boxes will be marked to indicate a "lite" box and placed on the proper stack.

Only qualified EOD personnel will be authorized in the magazine area (within 50 feet). Only qualified EOD personnel who have been designated in writing by the Project Manager will have access to the magazine and the magazine keys. No smoking or flame producing devices are allowed within 50 feet of the magazine. Magazine operations are not allowed during electrical storms, i.e., when a storm is within five miles, or during sand storms with the wind exceeding 25 miles per hour. Data on local weather conditions will be obtained from the area meteorologist and/or from field equipment.

1.2.3 Maintenance

Documented magazine inspections will be conducted on a monthly basis. Battery–powered, explosion–proof artificial light will be used in the magazine. Magazine doors will be kept closed and locked. The doors will be kept in good working order, and the magazine will be kept free of all extraneous material and equipment. A 50–foot wide area around the magazine will be kept free of all combustible material.

Repairs to the magazine must be authorized by the Project Superintendent. Painting or stenciling is not allowed in the magazine. Empty containers, tools or equipment will not be stored in any magazine containing explosives. Noticeable damage to the magazine will be reported to the Project Superintendent. Magazines will be completely emptied prior to conducting any magazine repairs.

1.2.4 Accountability

Personnel authorized to conduct explosive transactions will be identified in writing by the Project Manager. All explosives will be accounted for using a magazine log sheet (Wyle Form 959–A) and a magazine stack card. These forms will be completed prior to placing any item in

storage or taking any item out of storage. The magazine log will be maintained in the project field office. Stack cards will be placed on top of the appropriate container or stack. Separate log sheets and cards are required for each lot number, even if the items are identical.

Inventory accountability is mandatory. A documented monthly inventory will be conducted by an EOD Leadman. Results of the inventory will be recorded in the magazine log in the field office.

Magazine keys (or codes) will be kept in a secure key box located in the project office. Keys will be logged and documented whenever they are issued and again when they are returned.

1.2.5 Potential Problem Areas

Potential problems include range fires and unaccountable explosive shortages.

1.2.6 Contingency Procedures

The area around the magazine will be kept clear of combustible materials. Fire extinguishers will be inspected on a monthly basis. Personnel will be trained in the use of fire fighting equipment.

Unaccountable shortage will be reported to the Project Superintendent who will conduct an investigation with the Project Safety Officer. Unresolved incidents of unaccounted explosives will be reported to the Remedial Action Engineer, DOE–ID ERD, PTI, Federal, State, and local law enforcement agencies.

1.3 BLASTING AREA

A blast site has been selected approximately two miles east of the Naval Reactor Facility (NRF). The site meets the quantity distance and blasting area requirements of AFR 127–100, T.O.11A–1–42, DOD 6055.9 Std and DOE Explosive Safety Manual.

The following minimum blast area requirements have been met:

- 2400 feet from buildings and the INEL boundary
- Natural barricades such as hills or gullies are available. There is an existing blast crater approximately 25 feet deep. This pit will serve as a natural barricade.
- No combustible materials within 200 feet of the immediate blast area. Any existing material will be cleared before use.
- Safe drivable roads for access and exit
- Free of RF hazards

During mobilization the blast site will be inspected by Wyle EOD personnel for suitability. Physical condition of the site will be logged and recorded. Deficiencies, if any, will be logged and reported to the MK–FIC RAE.

UXO blasting operations will be conducted on an as–required basis in the blast area in support of the work areas. Normally UXO will be detonated in place. However, UXO may be transported to the blast area whenever there is a conflict with quantity distance or safety requirements at the site where the UXO was located.

Personnel conducting blasting operations will observe the minimum safe separation distance of Table 1 for the maximum quantity of net explosive weight (NEW) being destroyed.

Only an electrical initiation system will be authorized at the blasting area. The EOD Team Leader in charge of blasting operations will ensure that the blast area is clear of all personnel prior to the start of disposal activities. He will ensure that the communications are in good working order, roads have been blocked, signs posted, range flag displayed, firing line is in place and in working order, and that the area is clear of combustible material. Blasting operations will be conducted in accordance with the Blasting Plan and Wyle SOP 518–200–011B. A copy of this SOP is provided in the Remedial Action Work Plan. The Blasting Plan is bound separately.

Table 1
Safe Separation Distances

Pounds of Explosives	Distance in Feet	Pounds of Explosives	Distance in Feet
0 – 27	900	85	1315
28	910	90	1345
29	920	95	1370
30	930	100	1390
32	950	125	1500
34	970	150	1595
36	990	175	1680
38	1010	200	1755
40	1020	225	1825
42	1040	250	1890
44	1050	275	1950
46	1075	300	2010
48	1080	325	2065
50	1105	350	2115
55	1140	375	2165
60	1170	400	2210
65	1200	425	2255
70	1230	450	2300
75	1260	475	2340
80	1290	500	2380